A.R.M. LOXAHATCHEE NATIONAL WILDLIFE REFUGE

ENHANCED WATER QUALITY PROGRAM

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ACRONYMS AND ABBREVIATIONS

ACME Special Drainage District, Village of Wellington
acre-ft acre-feet (volume reported as one acre in area by one foot in depth)
cfs cubic feet per second
Cl chloride
cm centimeter
DBHYDRO SFWMD's web portal for water quality data
DCS depth from water surface to consolidated substrate
DOI US Department of Interior
EVPA Federal Consent Decree compliance sampling network for Refuge
ft feet
FWM flow-weighted mean
km kilometer
L liter
LOXA Refuge's expanded water quality monitoring network
m meter
mg milligram
NGVD National Geodetic Vertical Datum
NO_x total concentration as nitrogen of oxides of nitrogen, $NO_2 + NO_3$
Refuge A.R.M. Loxahatchee National Wildlife Refuge
s second
SFWMD South Florida Water Management District
SO_4 sulfate
STA Stormwater Treatment Area
Tdepth depth of clear water column
TN total nitrogen
TP total phosphorus
µg microgram
µS cm^{-1} microSiemens per centimeter (measure of conductivity)
USACE U.S. Army Corps of Engineers
USFWS U.S. Fish and Wildlife Service
USGS U.S. Geological Survey
WCA Water Conservation Area

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EXECUTIVE SUMMARY

Congress appropriated funds to the U.S. Fish and Wildlife Service in 2004 which funded an enhanced water quality monitoring network and hydrodynamic and water quality models to improve the scientific understanding of water quality in the Arthur R. Marshall Loxahatchee National Wildlife Refuge[1] (Refuge). The network and models provide information that is used in management decisions to better protect Refuge resources. The enhanced water quality monitoring network complements the compliance network monitored as a part of the 1992 Federal Consent Decree (Case No. 88-1886-CIV-MORENO) by characterizing the water quality of a larger Refuge area, particularly the fringe area potentially impacted by canal water intrusions. Monthly grab samples have been collected at 37 to 39 stations located in the marsh and canal since June 2004. The number of grab sample stations has reduced to 37 because three stations located near the canal were overrun with cattail making them inaccessible. Additionally, continuous measurements of conductivity have been collected along seven transects, four of which extend from surface water discharge points in the canal into the interior. This report is the eleventh annual report, with analyses focused on January through December 2014, and with comparisons made to the preceding years (2004 through 2013).

Water quality data (particularly total phosphorus) and analyses of canal water intrusion into the Refuge marsh presented in this report document continued intrusion of rim canal water into the Refuge interior, adding to a growing information base about canal water impacts to the Refuge. Intrusion of nutrient-rich and high conductivity water from the canal network surrounding the Refuge has been shown to negatively impact Refuge flora and fauna. Important insights gained from 2014 canal water intrusion analyses include:

- Canal water intruded into the marsh up to 3 km late in the year after several months of high stage associated with inflows and minimal to no outflows.
- Rainfall total in 2014 for the Refuge and contributing basins was higher than the annual historic average since 1963.
- Canal water intrusion into the marsh varied temporarily and spatially. Along the northwestern and southeastern transects, intrusion was greatest during the first two months of the year, relating to the lingering intrusion from the preceding year. Along the northeastern and most southwestern transects intrusion was greatest from October through the end of the year. The unique configuration of intrusion, particularly during the last quarter of the year, was related to difference in canal-marsh stage relationships between the western and eastern canals. From October through December, west canal stages were lower than marsh stages, while east canal stage was greater than marsh stage. East canal stages higher than marsh stages reduced the potential for marsh water buffering canal water intrusion. Alternatively, west canal stages lower than marsh stages allowed the marsh water to buffer canal water intrusion and ultimately reduce the distance of canal water intrusion.

[1] Public Law 108-108; see House Report No. 108-195, p. 39-41 (2004)

Analyses of these data continue to support previously suggested management practices that have the potential to minimize intrusion. This year, the Refuge achieved the high stage performance measure (PM) which calls for water stage above 16.4 ft for more than 4 weeks in 4 of 5 years. This year makes three consecutive years and the fourth year in the last five that the PM was met. The PM is designed to provide ecological conditions that promote replenishment of the fish prey-based populations following low water years and establishment of hydrologic conditions conducive for promoting water stage recessions that concentrate the fish prey-based population during wading bird fledging season. A few recommendations with regards to reducing canal water intrusion are summarized as balancing inflow and outflow volumes, reducing the duration of inflows, and reducing inflow rates when the canal stage is lower than the marsh stage.

Based on the surface water conductivity data, the Refuge was classified into four geographic zones: (1) Canal Zone; (2) Perimeter Zone, located from the canal to 2.5 km (1.6 miles) into the marsh; (3) Transition Zone, located from 2.5 km (1.6 miles) to 4.5 km (2.8 miles) into the marsh; and (4) Interior Zone, greater than 4.5 km (2.8 miles) into the marsh. Overall, water quality conditions in the Perimeter continue to be different from, and more impacted than, the Interior Zone. Cattail expansion in the Refuge marsh, negative impacts to periphyton and *Xyris* spp. in response to nutrient and mineral enrichment, and displacement of sawgrass in the canal water-exposed areas of the marsh are a few examples of marsh impacts.

This report continues to document that water movement between the canals and the marsh is influenced by rainfall, structure-controlled water inflow and outflow into and from the perimeter canal, the difference between canal and marsh stages, and marsh elevation. When combined with our understanding of canal water intrusion's influence on the marsh, these data continue to suggest that high-nutrient water is having a negative impact on the Refuge marsh (e.g., enriched soil TP, displacement of sawgrass by cattails, loss of *Xyris* spp., etc.).

ANNUAL PROGRAM SUMMARY

The objective of this section is to provide a general descriptive summary of environmental conditions, canal water intrusion into the Refuge marsh (movement of water from the perimeter canal into the marsh interior), and associated water quality in the Refuge from January through December 2014 following approaches presented in previous annual reports (USFWS 2007a, b; USFWS 2009; USFWS 2010a, b; USFWS 2012a, b, USFWS 2013, USFWS 2014). Further, we compare results, particularly total phosphorus (TP), in 2014 to results presented in previous water quality reports covering the period from January 2004 through December 2013 (Harwell et al. 2005; USFWS 2007a, b; USFWS 2009; USFWS 2010a, b, USFWS 2012a, b, USFWS 2013, USFWS 2014). Thus, this section serves as an update to the 2013 annual report (USFWS 2014) and briefly characterizes environmental conditions (e.g., rainfall, canal flows, marsh and canal stages, and water quality) associated with events of canal water intrusion into the marsh and water quality conditions during 2014.

Background

Prior to June 2004, water quality in the Refuge interior was monitored primarily using the 1992 Federal Consent Decree (Case No. 88-1886-CIV-MORENO) compliance network (EVPA). These 14 stations (**Figure 1**), monitored since 1978, characterize the central region of the interior marsh, leaving a relatively large region uncharacterized, predominantly in the outer, impacted fringe of the wetland (Harwell et al. 2005; USFWS 2007a, b; USFWS 2009; USFWS 2010a, b, USFWS 2012a, b, USFWS 2013, USFWS 2014). In June 2004, the Refuge initiated an enhanced water quality monitoring network (LOXA) intended to improve the scientific understanding of water movement in and out of the Refuge marsh, water quality in the marsh, and to provide information that can be incorporated into water management decisions to better protect Refuge resources (Brandt et al. 2004). The enhanced monthly sampling focuses on areas near surface water discharge stations in areas uncharacterized by the EVPA network (**Figure 1**).

Water delivered to the Refuge originates as direct rainfall and canal water discharges from the surrounding basins. Stormwater treatment areas (STA) 1W and 1E treat the majority of water delivered to the Refuge via canals. Canal discharges are driven by rainfall in the surrounding basins, with a large volume delivered to the Refuge from the L-8 and S-5A basin (Burns and McDonnell Engineering Co, Inc. 2005). The L-8 basin discharges are generally a mixture of water from Lake Okeechobee and the S-5A and C-51 basins (Gary Goforth, Inc. 2008). The STA-1E water control plan indicates that during this interim period (through 2015), water discharges to tide (east coast – Lake Worth Lagoon) should approach 150,000 acre-ft, while the remainder of the water should be treated and distributed throughout the Everglades Protection Area (Refuge south to Florida Bay). Stormwater Treatment Areas 1W (180,000 acre-ft annually capacity) and 1E (165,000 acre-ft annually capacity) are to treat some of this water (Gary Goforth, Inc. 2008).

Water levels in the Refuge are managed by U.S. Army Corps of Engineers (USACE) based on the 1995 Water Regulation Schedule (USFWS 2000; USFWS 2007a, b; **Figure 2**). Inflows to the

Refuge from the STAs or as bypass around the STAs are controlled by the South Florida Water Management District (SFWMD), while discharges from the Refuge are controlled by USACE. Since 2009, staff from the Refuge has held weekly calls with USACE to provide input on timing and volumes of discharges from the Refuge.

Methods

Environmental Conditions. Rainfall, flow, stage, and additional water quality data were downloaded from the South Florida Water Management District (SFWMD) data web portal, DBHYDRO and data were current as of June 11, 2015 (http://my.sfwmd.gov/portal/page?_pageid=2235,4688582&_dad=portal&_schema=PORTAL). All stage data presented in this report are relative to the NGVD 1929 datum. Data from the USGS 1-7 stage gage (**Figure 1**) were used as estimates of marsh stage values; stage data from the 1-8C (**Figure 1**), adjusted down by 0.091 ft, were used to represent canal stage. These data, without the adjustment, were also used to assess the number of days the canal and marsh stages were greater than 16.4 ft in any year, with 21 to 28 days being optimal for providing desired stages going into the dry season for proper recession and adequate water for hatchling foraging. Refuge inflow and outflow were aggregated as the total daily average flow. Inflow records for ACME-1, ACME-2, G-310, G-251, S-362, G-300, and G-301 were used for daily average inflow into the canals; outflow records at G-300, G-301, G-94A, G-94B, G-94C, S-10A, S-10C, S-10D, and S-39 were used for daily average outflow out of the canals (**Figure 1**). Data from G-338 also were considered, but the discharges were sparse and not included in these analyses. Daily rainfall data were averaged from the LOXWS, S-6, S-39, and S-5A weather stations to represent Refuge rainfall (**Figure 1**). Rainfall for the C-51 is represented by S-5A and WPB AIRP, and Pahokee1 and Pahokee2 represent rainfall for the S5A basins. Flows to the east of the Refuge from the S-5A, C-51, and L-8 basins are represented by pump structure S-155A.

Intrusion Monitoring. Conductivity acts as a conservative tracer of canal water; there are no biological or chemical processes in the surface water that significantly alter conductivity. Thus, these data can be used to track canal water intrusion into the marsh, which ultimately can be examined in relationship to water management operations. We determined the spatial and temporal extent of high conductivity canal water intrusion into the Refuge under different hydrologic conditions with emphasis on six of the seven Refuge conductivity transects (**Figure 1**), where temperature-compensated conductivity is collected hourly using conductivity data loggers. Also, we related changes in the extent of intrusion to water management activities affecting canal stages and flows into the Refuge, and determined the influence of natural meteorological events and hydrologic mechanisms on intrusion of high conductivity canal water.

We used the six conductivity transects to track water movement between the canal and the first six kilometers of the marsh (**Figure 1**). Two transects (STA-1E and STA-1W) were established near the outflow of STA-1W and STA-1E discharge structures. Two of the remaining transects (ACME-2 and Southeast) were established on the east side of the Refuge south of the STA-1E discharge structure. We established the Southeast (SE) transect late in July 2007 to capture canal water intrusion in areas not previously characterized. The final two transects (S-6

and Extreme Southwest) were established on the west side of the Refuge south of the STA-1W discharge structure. The Extreme Southwest (ESW) transect also was established late in July 2007 to capture canal water intrusion signals in areas previously not characterized.

Seventy-five percent of canal monthly conductivity values were greater than 992 μS cm^{-1} and the maximum was 1,352 μS cm^{-1}. Monthly Interior Zone conductivity levels remained below 146 μS cm^{-1} through 2013. Given this difference in conductivity between the canal and the interior marsh, we use two conductivity levels, 350 and 500 μS cm^{-1}, to help identify the distance into the interior marsh that canal water penetrated. Tracking was done using isopleths of conductivity generated from the hourly conductivity data. Isopleths are lines connecting points of equal value for a given metric. Elevation contours on a topographic map are examples of isopleths.

The two isopleths (350 and 500 μS cm^{-1}) were chosen to sufficiently cover the conductivity gradient observed from the canal into the marsh. Further, laboratory and field studies have shown that high conductivity waters (>300 μS cm^{-1}) have adverse impacts on the ecosystem community structure (e.g., reduced growth rate of *Xyris* spp. (McCormick and Crawford 2006), shifts from sawgrass to cattail communities (Richardson 2010), altered periphyton community structure (Sklar et al. 2005).

Marsh Total Phosphorus. As in past years, monthly water quality samples were collected from the EVPA and LOXA monitoring networks (**Figure 1**). The EVPA network consists of 14 interior marsh stations collected cooperatively with the SFWMD and Refuge staff. Refuge staff solely-collect water samples from the 37 stations (five in the canal and 32 in the marsh) in the LOXA network. The number of grab sample stations has reduced from 39 to 37 since the program's inception because two stations located near the canal were overrun with cattail, making them inaccessible for water quality sampling. Samples for both networks generally are analyzed for more than 20 water quality parameters. Sample collection is confounded by water depth and sample station accessibility. When clear water depths are between 10 and 20 cm (3.9 and 7.9 inches), only partial samples are collected and analyzed for 6 of the 29 water quality parameters, including: TP, chloride, sulfate, temperature, depth, and specific conductance. When the clear water depths are below 10 cm (3.9 inches), no samples are collected and no data are recorded. This report only presents TP data. **Appendix A** presents summary statistics for all water quality parameters measured in the LOXA network.

Water Quality Zones. The Refuge interior was classified into several geographic zones based upon conductivity data variability and changes in median conductivity as a function of distance from the perimeter canal as presented in USFWS 2007a, b; 2009; 2010a, b, USFWS 2012a, b, USFWS 2013, USFWS 2014. For the analyses presented here, the following zones were identified:

- Canal: stations located in the canal
- Perimeter: stations located from the canal to 2.5 km (1.6 miles) into the marsh

- Transition: stations located from 2.5 km to 4.5 km (1.6 to 2.8 miles) into the marsh
- Interior: stations located greater than 4.5 km (2.8 miles) into the marsh

Water quality stations associated with each zone are presented in Appendix B – **Table B-1**.

Results

Environmental Conditions: S-5A and C-51 Basins. The 2014 S-5A (698,340 acre-ft) and C-51 (695,000 acre-ft) basin rainfall volumes were slightly higher than their historic averages since 1963 (681,558 and 615,802 acre-ft, respectively – **Figure 3a**). Consistent with previous years, wet season rainfall for S-5A (476,580 acre-ft) and C-51 (481,400 acre-ft) was greater than dry season (221,760 and 213,600 acre-ft, respectively – **Figure 3b**) rainfall. Rainfall in the S-5A and C-51 basins is a primary driver of inflows to the Refuge.

Flows through the S-155A structure and inflows to STA-1E operate in concert. Discharges to the east coast via S-155A have a guideline limit of 150,000 acre-ft yr^{-1}. In 2014, the volume of water discharged through S-155A was approximately 286,790 acre-ft, 63% higher than expected during normal operations. Inflow to STA-1E (47,292 acre-ft - **Figure 5a**) was lower than the treatment target of 165,000 acre-ft yr^{-1} (Gary Goforth, Inc. 2008) in 2014, similar to most of the preceding years since 2004. Inflow to STA-1W (226,405 acre-ft – Figure 5b) was greater than the treatment target of 180,000 acre-ft yr^{-1}. Inflow volumes to STA-1E and STA-1W were substantially lower than maximum annual treatment capacities of 304,993 and 329,169 acre-ft yr^{-1}, respectively (Germain 2013).

Environmental Conditions and Canal Water Intrusion: Refuge. Rainfall on the Refuge in 2014 was approximately 646,628 acre-ft (**Figure 6a**), with dry and wet season rainfall contributing 28% and 72% of total rainfall (**Figure 6b**). Rainfall on the Refuge was slightly higher than historic rainfall average since 1963 (625,981 acre-ft). Refuge canal total annual inflow in 2014 (280,341 acre-ft) was 8% lower than average (302,774 acre-ft) since 2004 and 2014 outflow (205,305 acre-ft) was 50% lower than average (337,657 acre-ft; **Figure 6c**). In 2014, dry season (82,251 acre-ft) inflow was higher than average dry season inflow (64,210 acre-ft) since 2004, while wet season (198,090 acre-ft) inflow was lower than annual wet season inflows (230,198 acre-ft). In 2014, dry season (52,166 acre-ft) outflow was 63% lower than the annual dry season average outflow (100,190 acre-ft) since to 2004, while wet season outflow in 2014 (153,139 acre-ft) was 27% lower than annual wet season average outflow (200,519 acre-ft). Mean canal (16.51 ft) and marsh (16.50 ft) stage in 2014 were higher than historic annual averages (15.73 and 16.16 ft, respectively) since 2004 (Table 3).

Daily inflow to the Refuge peaked several times throughout 2014 (**Figure 7a and 8a)**. Continuing from December 2013, water stages in the canal and marsh declined through early February 2014, when stages rapidly increased following a two inch rain event and more than 2,000 cfs of inflows to the Refuge. After the rain event and stage rise, stages continued the earlier recession in both the canal and marsh, generally driven by evaporation and transpiration as outflows were minimal. Canal and marsh stages declined to their lowest levels at the end of May and beginning of June. The rainy season initiated in mid-June and almost daily rainfall and

continuous inflows resulted in canal and marsh stages ascending into early-August, when rainfall slowed temporarily and stages plateaued for a few weeks. Prior to this plateau in stage, marsh stages were slightly higher than canal stages, but this configuration flipped after a 1 inch rainfall event followed by increased inflows not matched with outflows. Continued rains and inflows in late-August resulted in canal and marsh stages ascending through early-October when stages peaked to 17.48 and 17.42 ft, respectively. From this peak in October, stages in the canal and marsh began receding through the remainder of the year, but canal stages remained higher than marsh stages. Regardless of this canal-marsh configuration, the rainfall and inflows resulted in the Refuge achieving the high stage performance measure (PM) this year (**Figure 9**). The high stage PM requires Refuge stage to increase above 16.4 ft for more than 4 weeks in a year 4 of 5 years. This year makes the fourth year that the PM was met in the last five year. Because of failures to meet the PM in 2011, the high stages this year were necessary to promote fish prey-based population recovery.

The stage ascension in the marsh and canal were mostly driven by rainfall and inflow pulses from the STAs. Most transects, on both the west and east sides of the Refuge, started the year with elevated levels of canal water intrusion extending between 1.6 and 2.3 km into the marsh from the canal (**Figure 7c-e; Figure 8c-e**). From mid-February through March and April, intrusion reduced along transects near the STA discharges. Along the STA-1W transect, intrusion declined to about 1 km and remained at this level or lower throughout the rest of the year. Intrusion along the S-6 transect was rather stable when data logging occurred, with intrusion hovering around 1.5 km and less through the rest of the year. Once the canal stages exceeded the marsh stage, intrusion along the ESW transect increased from less than 1 km in early August to more than 1.8 km through the remainder of the year. Intrusion along the STA-1E and ACME-2 transects increased slowly after the canal stage increased above the marsh stage. Along the STA-1E transect, intrusion increased form 2 km in early July to more than 2.8 km in early October and stayed at this level of marsh penetration or deeper (maximum of 3.1 km) through the rest of the year. The ACME-2 transect only extends 1.5 km into the marsh and intrusion along this transect remained at between 1 and 1.5 km from early July to the end of the year. Intrusion receded from a peak of 1.6 km in early February to less than 0.5 km along the SE transect through the remainder of the year when data were collected.

Spatially, the drivers for canal water intrusion into the Refuge marsh interior are unique this year. This year, canal stages in the east (L-40) and west (L-7 and L-39) canals surrounding the Refuge, from October through December 2014, were fairly different with stage at G-310 (west canal) being lower than stages at S-362 (east canal) and 1-8C (**Figure 10a**). Further, stage at G-310, during this period, was lower than stage in the marsh (1-7), while stage at S-362 and 1-8C were both higher than stage in the marsh. On average, since 2004, between October and December the canals and marsh stages follow the same pattern and G-310 tended to have similar stages as the 1-8C (**Figure 10b**). As a result of the canal and marsh stage configurations this year, it appears that canal water intrusion was reduced on the west side of the Refuge relative to the east side.

Total Phosphorus and Intrusion Dynamics. Monthly flow-weighted mean TP concentrations discharged to the Refuge from STA-1E and STA-1W in 2014 ranged from 16 to 66 ppb, while canal concentration ranged from 15 to 40 ppb (**Figure 11a**). Canal TP concentrations peaked at the beginning of February (40 ppb) following a 2 inch rainstorm event associated with inflows to the Refuge greater than 3,000 cfs. However, canal TP concentrations steadily receded through the remained of the year consistent with the STA discharge concentrations. Perimeter Zone TP concentrations were 10 ppb or lower through 2014 except from July through October, when they peaked to 13 ppb (**Figure 11b**). Transition Zone TP concentrations remained below 10 ppb except in June when the concentration spiked to 42 ppb, likely because samples were collected when water levels were barely high enough to collect samples. Interior Zone TP concentrations remained below 10 ppb through the entire year with the highest concentration of 9 ppb in October 2014.

In October 2014, there was an excursion of the long-term TP level for the compliance network identified in the Federal Consent Decree. On the east side of the Refuge, canal water intrusion extended greater than 2.8 km into the marsh along the STA-1E transect, at least 1.5 km (maximum length of this transect) along the ACME-2 transect, and 0.5 km along the SE transect. Alternatively, along the west side of the Refuge, canal water intrusion extended 1.3 km along the S-6 transect, and was not measured along the STA-1W or ESW transects because of equipment malfunctions resulting in data loss. Most of the higher TP concentrations (10 to 13 ppb) for the EVPA compliance network were further than 3 km into the marsh, suggesting other factors may have also been involved in the excursion beyond canal water intrusion alone.

Discussion

Since the initiation of the enhanced water quality monitoring program, the 2014 environmental conditions for the Refuge and contributing basins represent a year with above average rainfall for the system and unique canal-marsh stage configuration not observed over the programs period of record. These conditions led to the Refuge meeting the high stage PM target established to promote ecological benefits for the third year in a row and fourth year of the last five years, suggesting the Refuge has meet the longer-term performance measure to support ecosystem function. Because the Refuge failed to meet the target in 2011, a drought year, it was necessary for the Refuge to meet the target this year.

Rehydration of the marsh in late June resulted in substantial intrusion into the marsh going into July. This intrusion event followed a rapid stage rise, in which the canal stage increased to the level of the marsh stage and both continued to rise through the remainder of the year. Similar to previous years on record, the intrusion event was driven mostly by high and continuous inflow rates and antecedent rainfall. This year marks the first year over the period of record in which canal water intrusion between the northern transects was markedly unique as a result of the water stages in the west and east canal not matching and the west side being lower than the marsh interior stage, while the east canal was higher than the marsh stage. Because of this canal-marsh stage configuration, canal water intrusion on the east side of the Refuge increased after August through the rest of the year, while the opposite dynamic was observed on the

west side of the Refuge. This unique set of environmental conditions demonstrates how sensitive canal water intrusion into the marsh is to canal-marsh stage configuration.

Previous annual reports for the Refuge (Harwell et al. 2005; USFWS 2007a, b; USFWS 2009; USFWS 2010a, b, USFWS 2012a, b, USFWS 2013, USFWS 2014) have presented water management suggestions, including dry-down frequencies and minimization of canal water intrusion. Some of those suggestions focused on controlling inflows and outflows to minimize canal water intrusion into the marsh. In the 2005, 2006, 2007, 2008, 2009, 2010, 2011, 2012, and 2013 annual reports, we suggested that if canal water inflows were necessary, the inflow rate should be below 200 cfs and for a short duration (< five days). Alternatively, if high inflows were necessary and canal and marsh stages were greater than the marsh sediment elevation, then outflows should be timed to inflows and be greater than inflows. The recommended timing, volume, or duration of outflows with respect to inflows was not extensively observed in 2014. Failure to apply this guidance in 2014 resulted in considerable intrusion in June and from September through December on the eastern side of the Refuge. Because of findings in this and previous years, we continue to support the water management recommendation to reduce canal water intrusion as characterized here and in previous reports (USFWS 2007a, b; USFWS 2009; USFWS 2010a, b; USFWS 2012a, b, USFWS 2013, USFWS 2014). Some of these management recommendations include (**Table 2**):

- Refuge inflows should be short duration (≤ 5 days) pulses of < 200 cfs (6 $m^3 s^{-1}$) when absolute canal/marsh stage difference is < 0.2 ft (< 0.1 m) and interior water depths are < 0.5 ft (< 0.2 m).

- Refuge inflow rates can be moderate (200 to 400 cfs; 6 to 11 $m^3 s^{-1}$) for short durations if marsh stage is > 0.6 ft (> 0.2 m) higher than canal stage and waters depths are < 0.3 ft (< 0.1 m).

- If Refuge inflows must be extended beyond short-duration pulses at high volumes and there is nowhere else to send water during these inflows, outflow should occur as soon as possible to moderate the extent of intrusion.

We have presented our recommendations at several forums to water managers and the various agencies responsible for making water management decisions. These forums include direct communication from Refuge managers, Refuge specific weekly water coordination meeting with the USACE, quarterly regional water coordination meetings, and periodic calls with the Corps of Engineers. The quarterly water coordination meetings focus on water management for the northern portion of the Everglades (from Lake Okeechobee down to Water Conservation Area 2) and consist of multiple agencies (e.g., U.S. Fish and Wildlife Service, National Park Service, Corps of Engineers, Lake Worth Drainage District, Florida Fish and

Wildlife Conservation Commission, South Florida Water Management District). Periodic calls with the Corps of Engineers focus on water management under the various water regulation schedules for each of the Water Conservation Areas.

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Table 1. Mean, 25th and 75th percentiles, and number of days marsh (1-7) and canal (1-8C) stage are greater than or equal to 17 ft.

	Mean		25th Percntile		75th Percntile		Days >= 17 ft	
	1-7	1-8C	1-7	1-8C	1-7	1-8C	1-7	1-8C
Year	ft	ft	ft	ft	ft	ft	days	days
2004	16.30	11.81	15.94	13.64	16.6	16.42	20	0
2005	16.17	16.08	16.12	15.79	16.46	16.45	0	0
2006	16.19	15.69	16.07	15.76	16.57	16.63	16	24
2007	14.97	15.78	15.81	14.98	16.61	16.92	43	79
2008	16.69	16.54	16.49	16.27	16.92	16.93	65	75
2009	16.35	16.11	16.16	15.77	16.59	16.63	0	8
2010	16.61	16.42	16.52	16.11	16.71	16.79	0	15
2011	15.61	15.46	15.64	14.58	16.29	16.27	0	0
2012	15.81	16.26	16.20	15.99	16.78	16.97	70	90
2013	16.53	16.35	16.39	16.11	16.68	16.64	0	0
2014	16.50	16.51	16.22	16.13	16.93	17.10	68	111

Table 2. Evolution of water management recommendation based on water quality analysis since 2004.

Recommendation
Refuge inflows should be short duration (≤ 5 days) pulses of < 5655 L s^{-1} (< 200 cfs) when absolute canal/marsh stage difference is < 0.1 m (< 0.2 ft) and interior water depths are < 0.2 m (< 0.5 ft).
Refuge inflow rates can be moderate 5655 to 11,310 L s^{-1} (200 to 400 cfs) for short durations if marsh stage is > 0.2 m (> 0.6 ft) higher than canal stage by and waters depths are < 0.1 m (< 0.3 ft).
Refuge inflows should be discontinued when the canal stage is > 0.1 m (> 0.2 ft) higher than marsh stage, unless the rainfall or outflow volumes are 3 to 4-times higher than the inflows.
Refuge inflows should be discontinued when the canal stage is > 0.2 ft (> 0.1 m) higher than marsh stage, unless the rainfall or outflow volumes are equal to or greater than inflows.
If Refuge inflows must be extended beyond short-duration pulses, outflow should be greater than inflow and last several days longer.
If Refuge inflows must be extended beyond short-duration pulses, outflow should be equal to or greater than inflow and last several days longer.
If Refuge inflows must be maintained at high rates, the S-10s and S-39 should be opened to create outflow 3 or 4-times higher than inflow.
If Refuge inflows must be maintained at high rates, the S-10s and S-39 should be opened in conjunction with canal inflows to create outflow equal to higher than inflow.
If Refuge inflows must be extended beyond short-duration pulses at high volumes and there is nowhere to send water during these inflows, outflow should proceed as soon as practicable to moderate the extent of intrusion the marsh receives from the original inflows.

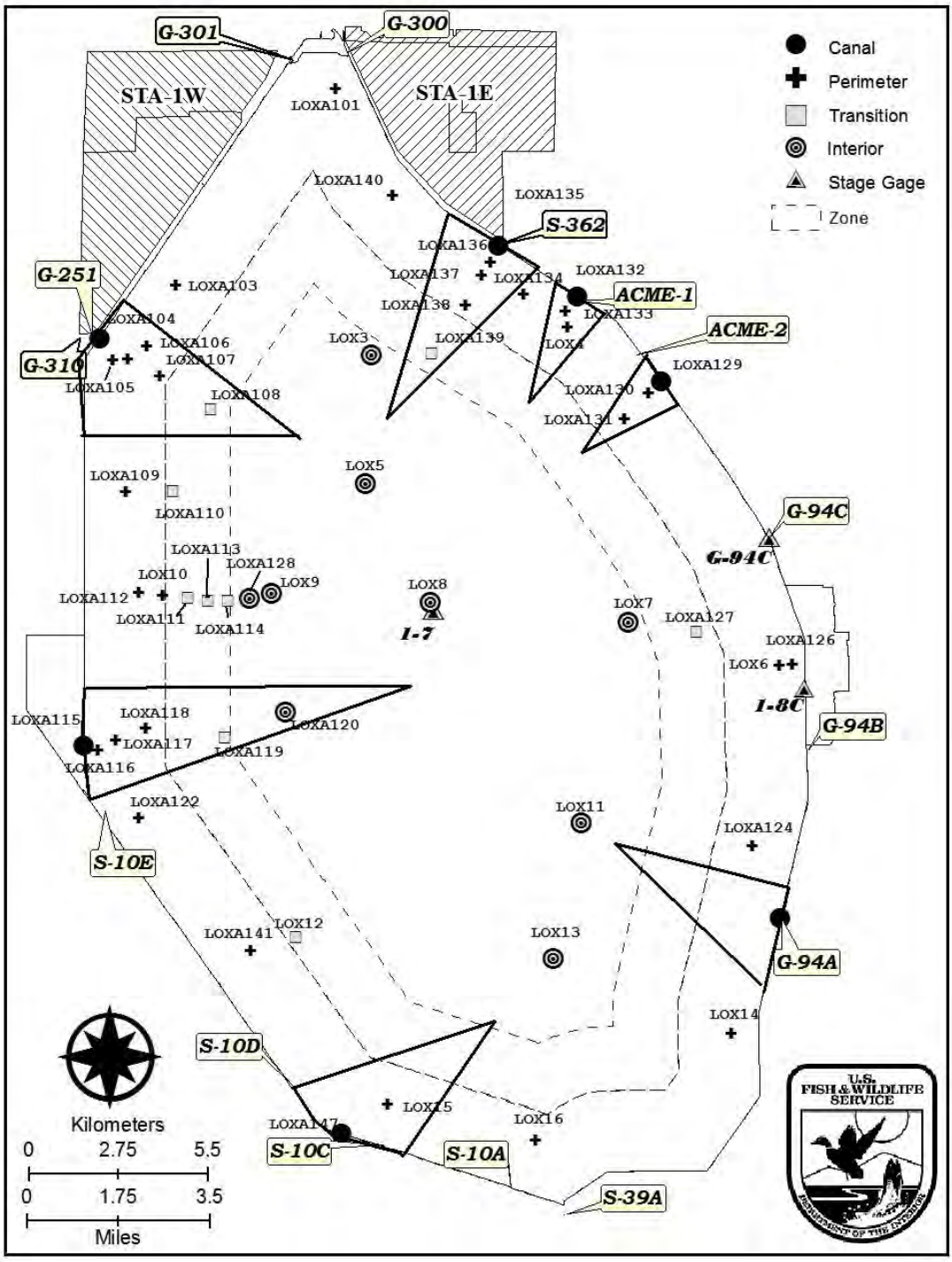
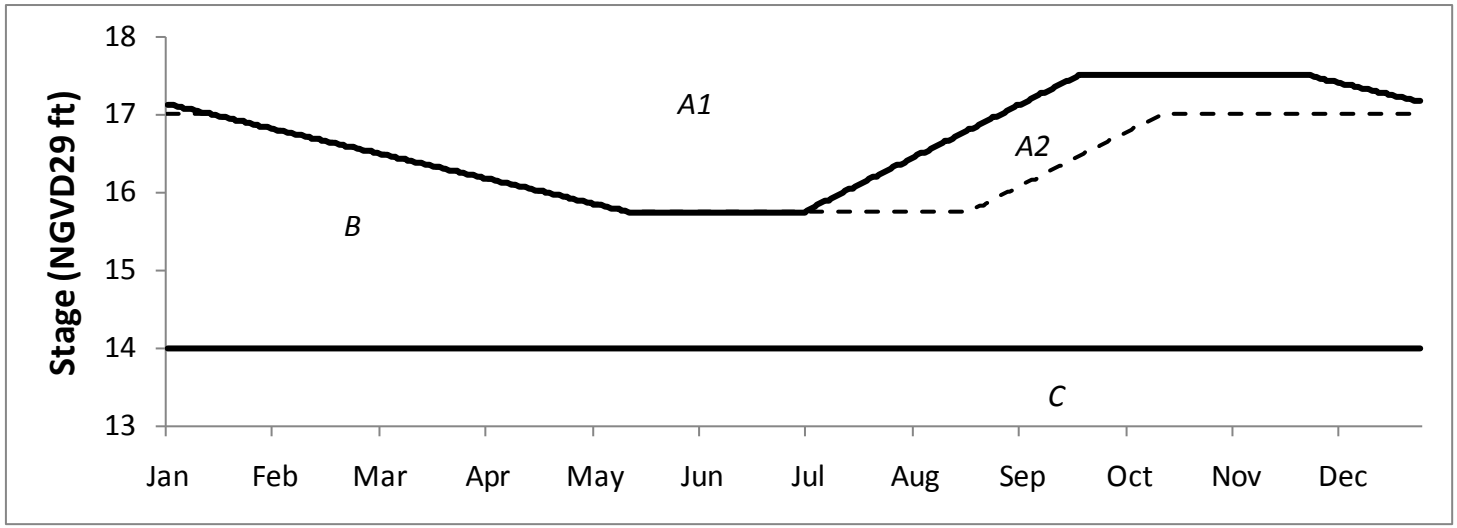


Figure 1. LOXA (LOXA###) and EVPA (LOX#) water quality monitoring stations, inflow and outflow structures, and canal and marsh stage gages used in this report. Solid polygons delineate transects, dashed polygons represent marsh zones.



DATES	USE GAGE	CONDITIONS
1 Jan - 30 Jun	1-8 Canal	All
1 Jul - 31 Dec	1-8 Canal	Except as noted below
	Avg. 1-7, 1-8T, 1-9	During rising stage when canal stage exceeds average.

ZONE	RELEASES
A1	Up to maximum at S-10 (and S-39 when agreed between Corp and SFWMD). Water supply releases as needed.
A2	S-10 releases based on Corps forecasts. Water supply releases as needed. If Lake Okeechobee stage is above WCA-1 stage or no more than one foot below WCA-1 stage, then water supply release from WCA-1 must be preceeded by an equivalent volume of inflow.
B	Water supply is needed. If Lake Okeechobee stage is above WCA-1 stage or no more than one foot below WCA-1 stage, then water supply releases from WCA-1 must be preceeded by an equivalent volume of inflow.
C	No net releases from WCA-1. Any water supply releases must be preceeded by an equivalent volume of inflow.

Figure 2. Water Regulation Schedule for the Arthur R. Marshall Loxahatchee National Wildlife Refuge (USACE 1994).

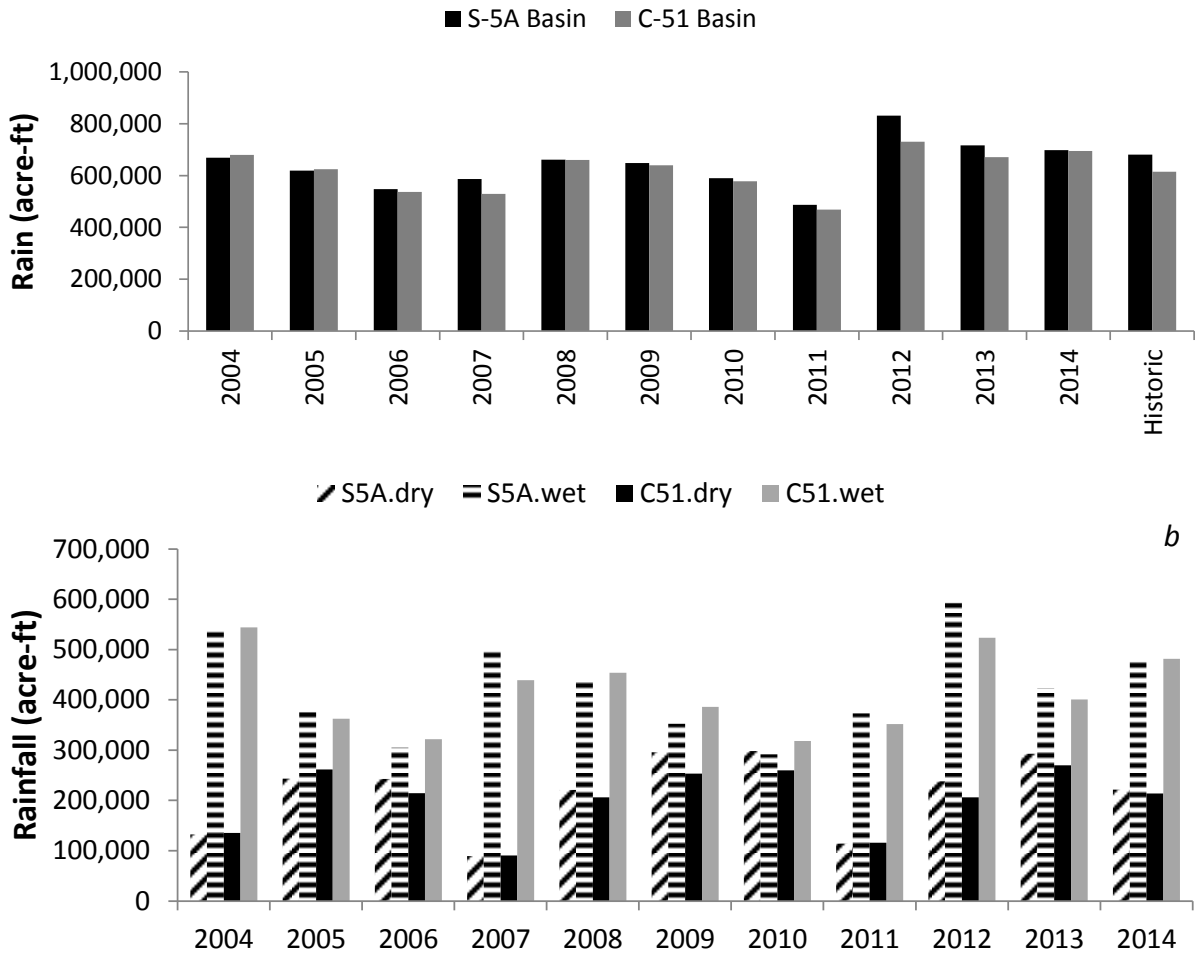


Figure 3. (*a*) Total annual and (*b*) dry and wet season rainfall for the S-5A and C-51 basins. Historic rainfall was determined from 1963 through 2014.

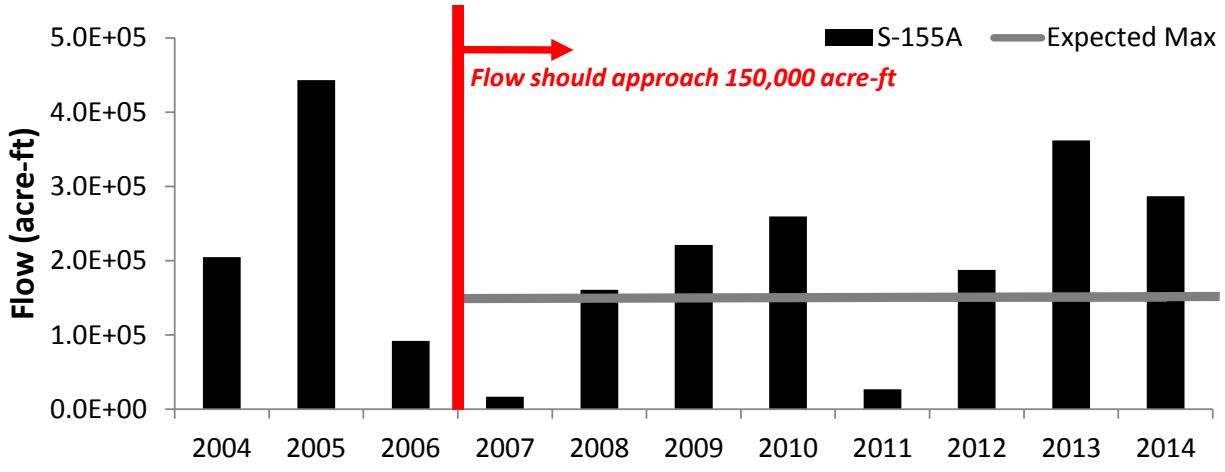


Figure 4. Total annual flows through the S-155A structure. The red vertical bar represents the period when flows through S-155A should approach 150,000 acre-ft as a mixture of L-8 and C-51 basin runoff (Gary Goforth, Inc. 2008). The horizontal grey bar represents the expected maximum (150,000 acre-ft) through S-155A.

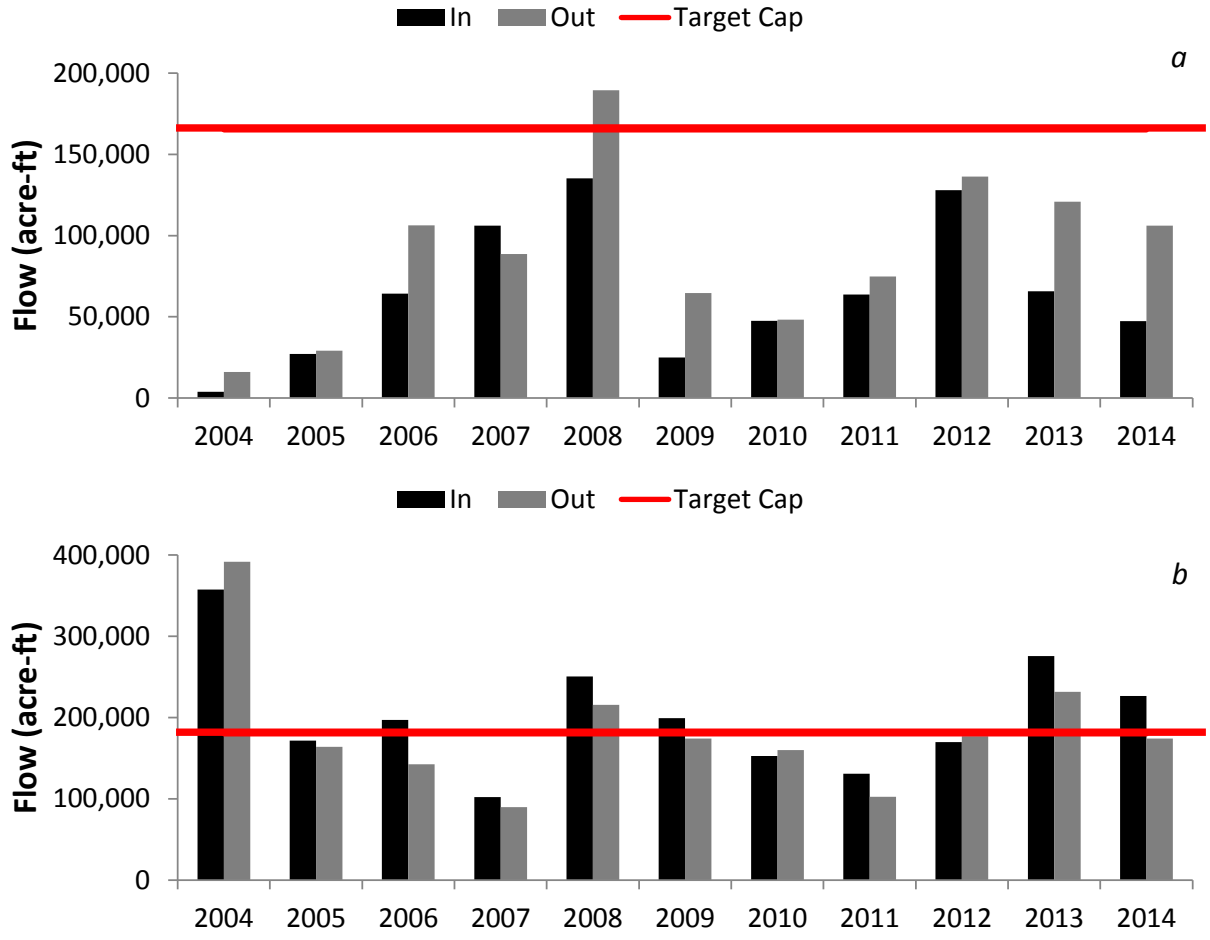


Figure 5. (a) STA-1E and (b) STA-1W annual inflow and outflow volumes. Horizontal red

lines represent target treatment capacities for STA-1E (165,000 acre-ft) and STA-1W (180,000 acre-ft; Gary Goforth, Inc. 2008).

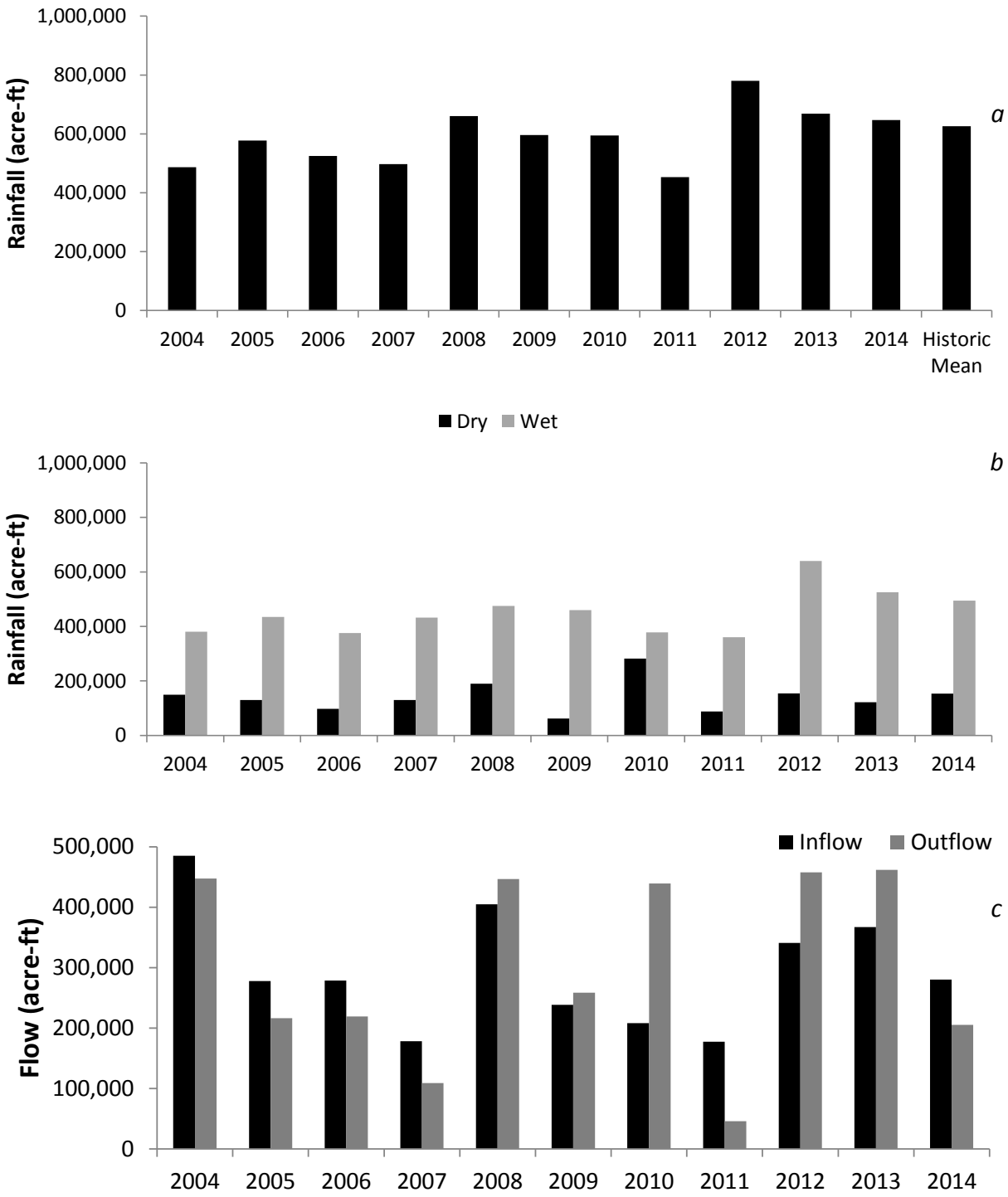


Figure 6. (*a*) Total annual rainfall, (*b*) total dry and wet season rainfall, and (*c*) inflow and outflow for the Refuge. Historic rainfall was determined from 1963 through 2014.

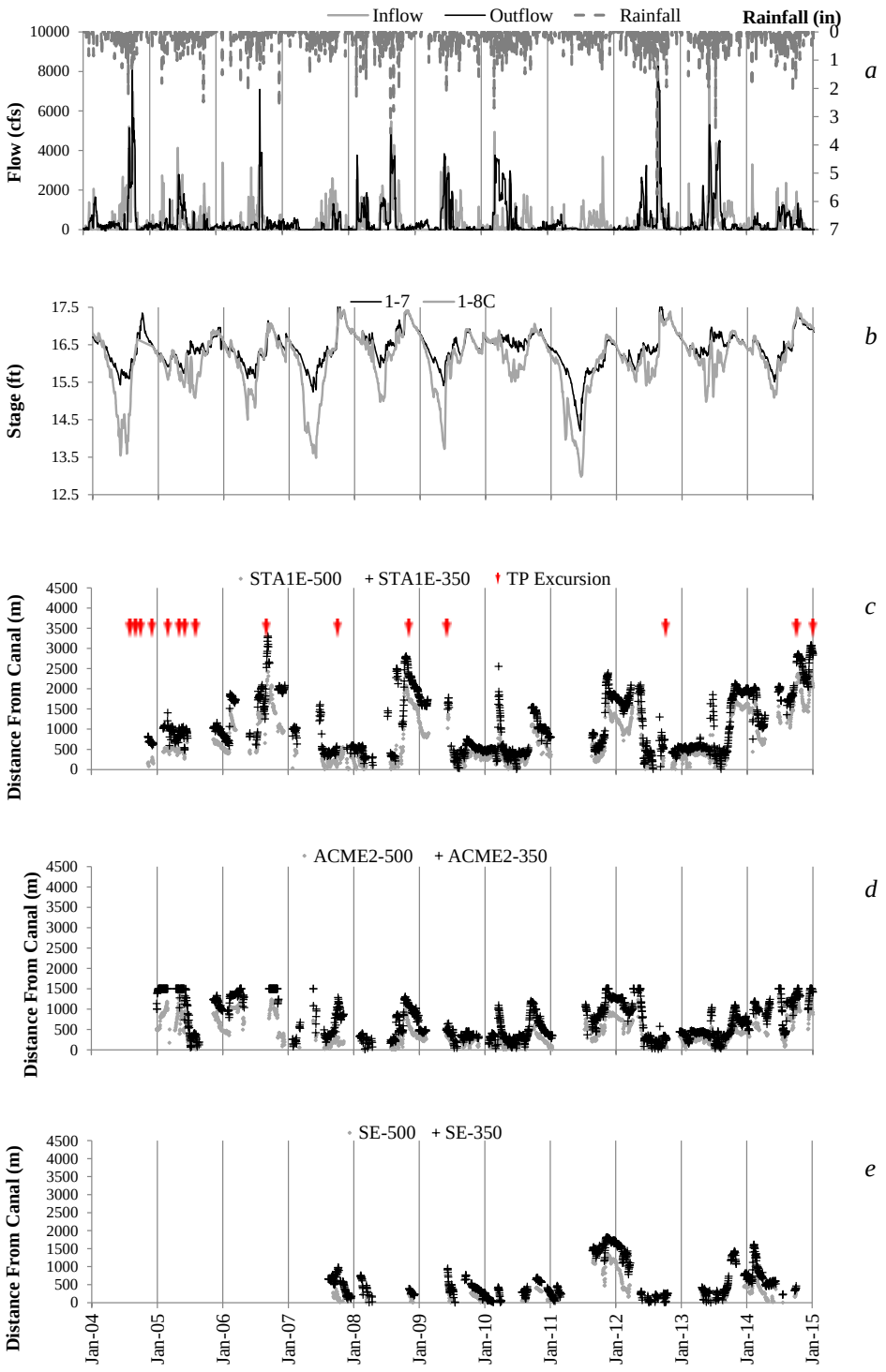


Figure 7. a) Inflow and outflow rates (cfs) summed for all structures from January 2004 to December 2014. b) Canal (G-94C) and marsh (1-7) stage levels (NGVD29). The 350 µS cm^{-1} and 500 µS cm^{-1} conductivity isopleths used to track canal water movement into and out of the marsh interior for: c) STA-1E, d) ACME-2, and e) SE transects. Red arrows indicate total phosphorus Consent Decree excursions.

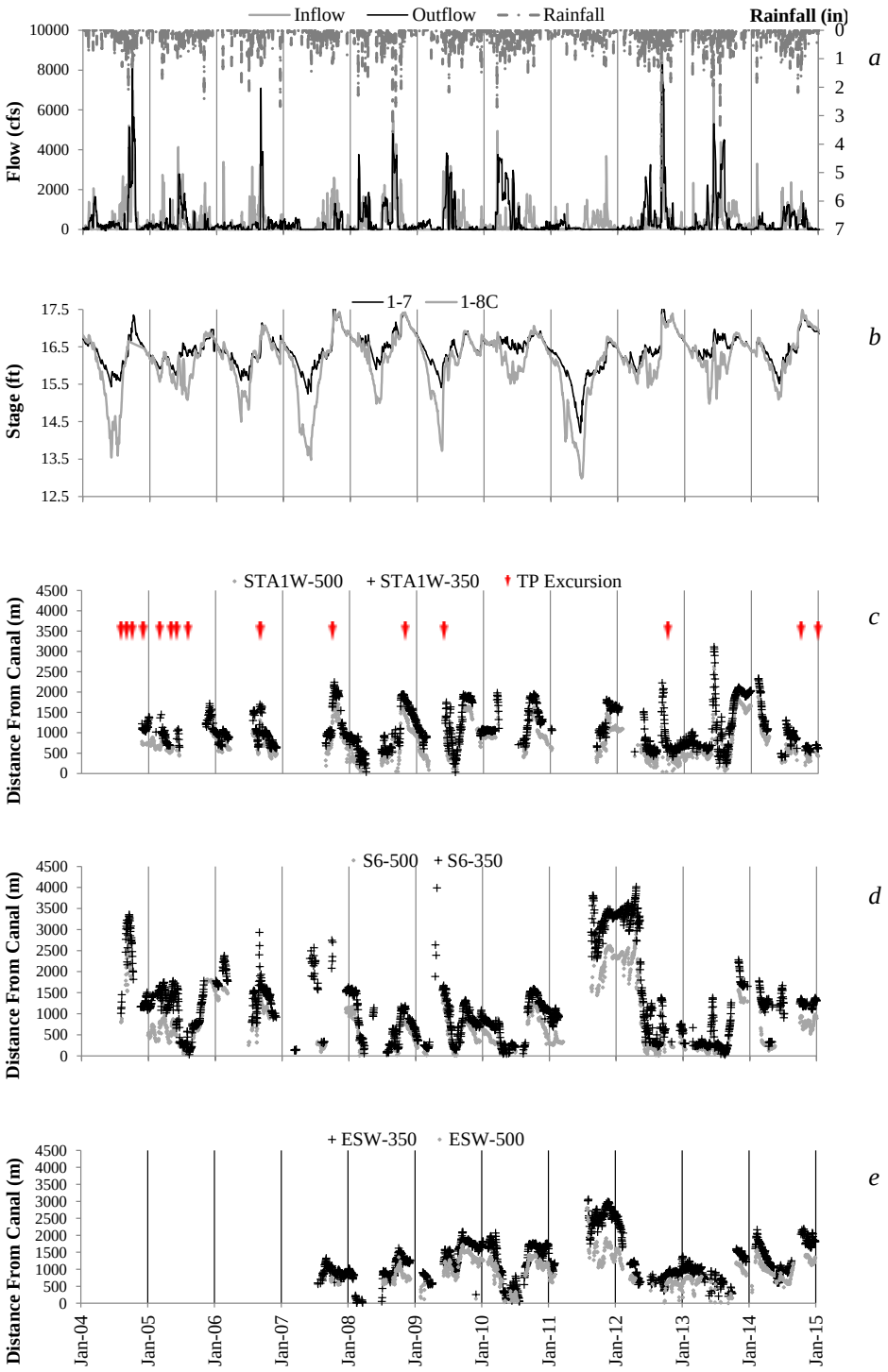


Figure 8. a) Inflow and outflow rates (cfs) summed for all structures from January 2004 to December 2014. b) Canal (G-94C) and marsh (1-7) stage levels (NGVD29). The 350 µS cm^{-1} and 500 µS cm^{-1} conductivity isopleths used to track canal water movement into and out of the marsh interior for: c) STA-1W, d) S-6, and e) the new ESW transects. Red arrows indicate total phosphorus Consent Decree excursions.

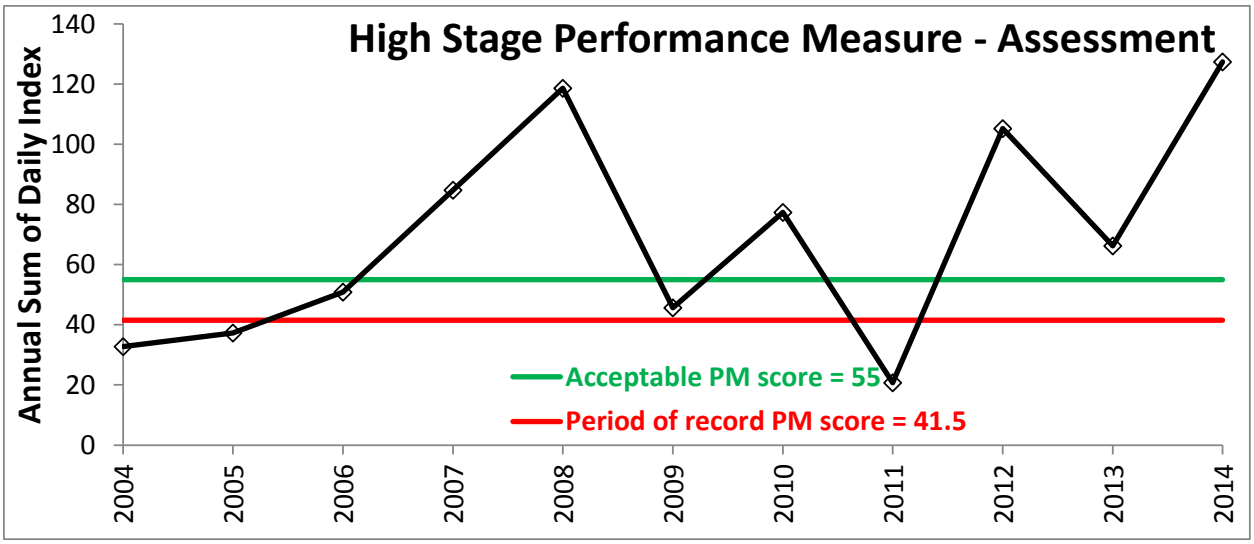


Figure 9. High stage performance measure (PM1b) based on calendar year stage values. The black line represents the PM value for each year, the green line represent the acceptable PM score for the period from 2004 through 2014, and the red line represent the period of record PM score.

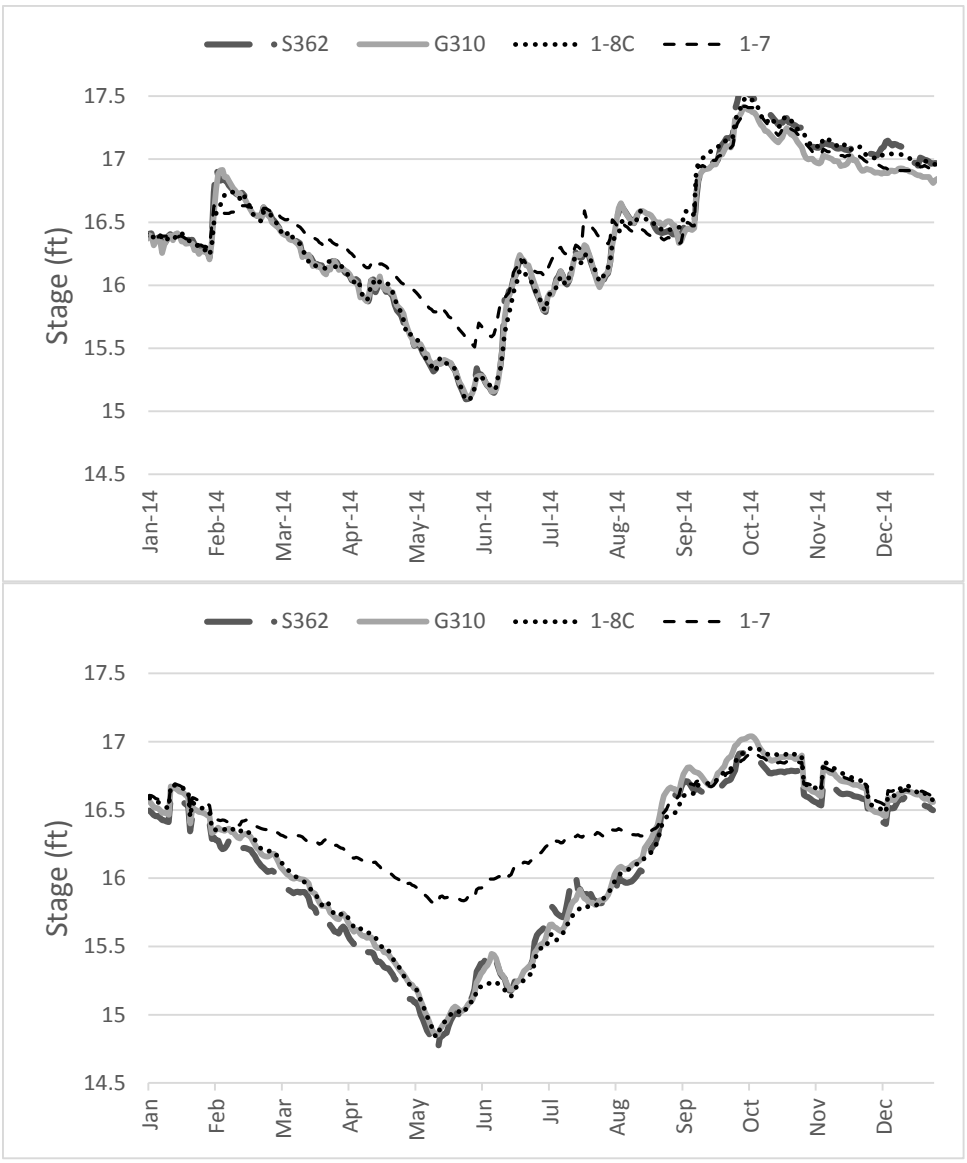


Figure 10. a) Stages at canal gages G310 (west canal – L-7), S362 and 1-8C (east canal – L-40) and a marsh gage (1-7) during 2014; and b) historic average daily stage from 2004 through 2014 at canal gages G310, S362, and 1-8C and marsh gage 1-7.

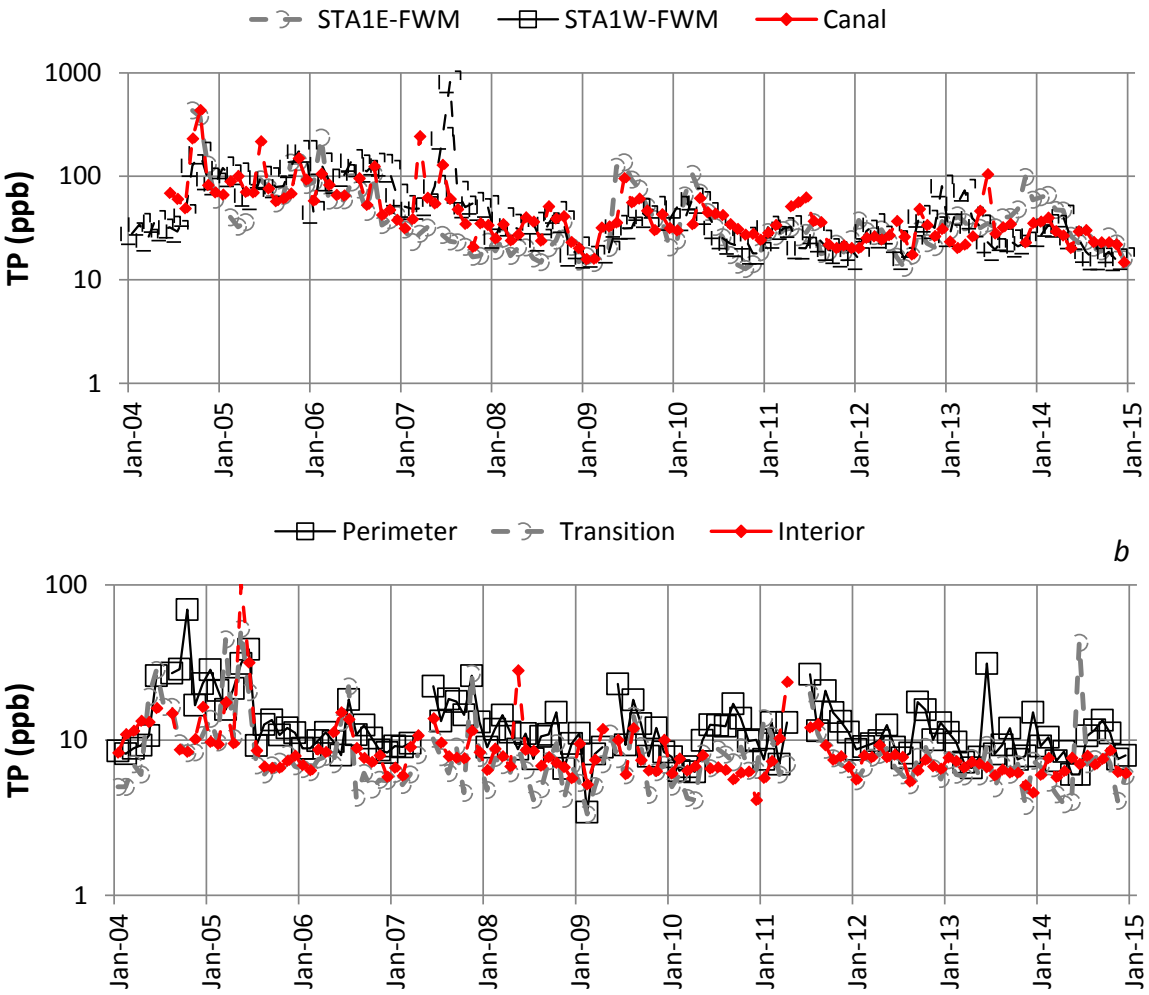


Figure 11. (a) Monthly TP FWM from Refuge inflow structures and TP concentration in the canal. (b) Monthly mean TP concentrations in marsh zones. The y-axes are based on a logarithmic scale.

APPENDIX A

Table A-1. *(a)* Parameter abbreviations spelled-out. *(b)* Individual EVPA and LOXA station summary statistics of water quality data for calendar year 2014. Where values were below the minimum detection limits, one-half of the minimum detection limit is reported (Weaver et al. 2008). Previous summary statistics (2004 – 2013) can be found in the previous annual reports (USFWS 2007a, b, 2009, 2010a, b, 2012a, b, USFWS 2013).

a

ABBREVIATION	TERM	UNIT
TEMP	Temperature	Celsius
DO	Dissolved oxygen	mg L^{-1}
SPCOND	Specific conductance	μS cm^{-1}
pH	pH	
TURB	Turbidity	mg L^{-1}
TSS	Total suspended solids	mg L^{-1}
NOX	Nitrate+nitrite	mg L^{-1}
TKN	Total Kjeldahl Nitrogen	mg L^{-1}
TN	Total nitrogen	mg L^{-1}
OPO4	Orthophosphate	μg L^{-1}
TP	Total phosphorus	μg L^{-1}
SIO2	Silica	mg L^{-1}
CA	Calcium	mg L^{-1}
CL	Chloride	mg L^{-1}
SO4	Sulfate	mg L^{-1}
ALKALNYA	Alkalinity	mg L^{-1}
TDOC	Total dissolved organic carbon	mg L^{-1}
TOC	Total organic carbon	mg L^{-1}
TDS	Total dissolved solids	mg L^{-1}

b

PERIOD	PARAMETER	STATISTIC	LOXA101	LOXA102	LOXA103	LOXA104	LOXA105	LOXA106	LOXA107	LOXA108	LOXA109	LOXA110
2004-2013	ALK	Mean	152	84	76	183	159	116	75	31	56	25
2014	ALK	Mean	109	43	57	192	125	81	35	14	50	24
2004-2013	ALK	Variance	1633	2323	2281	2315	2188	1905	1738	3926	652	56
2014	ALK	Variance	1692	40	1012	1258	2895	3869	4	1	293	33
2004-2013	ALK	25th Percentile	131	57	45	146	127	82	49	14	40	20
2014	ALK	25th Percentile	81	40	41	164	91	46	34	13	40	21
2004-2013	ALK	Median	154	64	62	183	160	103	53	16	51	24
2014	ALK	Median	104	41	42	192	121	53	35	14	44	24
2004-2013	ALK	75th Percentile	174	102	84	210	200	148	100	22	61	30
2014	ALK	75th Percentile	113	46	58	204	150	76	36	14	53	27
2004-2013	ALK	Count	39	28	33	111	44	36	17	25	80	34
2014	ALK	Count	6	3	4	11	7	5	2	3	10	6
2004-2013	CA	Mean	53	26	23	60	65	48	21	6	20	8
2014	CA	Mean	35	12	16	61	40	25	11	5	16	8
2004-2013	CA	Variance	212	257	262	329	11694	5940	209	3	112	6
2014	CA	Variance	214	1	97	146	297	321	0	0	37	3
2004-2013	CA	25th Percentile	45	17	13	45	34	23	13	5	12	6
2014	CA	25th Percentile	25	11	11	52	28	13	10	5	11	7
2004-2013	CA	Median	51	19	17	57	50	31	14	6	15	7
2014	CA	Median	32	12	12	57	39	18	11	5	14	8
2004-2013	CA	75th Percentile	58	32	26	69	65	46	25	7	24	9
2014	CA	75th Percentile	35	12	17	64	51	24	11	6	17	9
2004-2013	CA	Count	39	28	33	110	44	37	17	25	80	34
2014	CA	Count	6	3	4	12	7	5	2	3	10	6
2004-2013	CL	Mean	90	41	40	116	79	56	32	27	40	25
2014	CL	Mean	73	42	38	131	84	59	30	24	41	22
2004-2013	CL	Variance	1137	596	658	1324	1542	932	433	107	717	144
2014	CL	Variance	1623	1128	973	1216	1745	2012	369	117	806	59
2004-2013	CL	25th Percentile	64	26	21	93	49	30	22	19	22	16
2014	CL	25th Percentile	36	20	18	101	63	29	18	17	20	17
2004-2013	CL	Median	88	33	32	122	68	48	26	26	30	23
2014	CL	Median	73	26	20	138	73	40	20	22	27	22
2004-2013	CL	75th Percentile	113	47	48	140	110	82	30	34	50	29
2014	CL	75th Percentile	75	58	53	142	130	76	38	27	53	27
2004-2013	CL	Count	80	56	62	109	75	70	39	60	89	74
2014	CL	Count	9	7	8	11	9	8	6	7	10	9

PERIOD	PARAMETER	STATISTIC	LOXA101	LOXA102	LOXA103	LOXA104	LOXA105	LOXA106	LOXA107	LOXA108	LOXA109	LOXA110
2004-2013	DCS	Mean	0.30	0.31	0.32	1.00	0.35	0.30	0.29	0.28	0.43	0.33
2014	DCS	Mean	0.35	0.34	0.31	1.00	0.39	0.33	0.25	0.31	0.49	0.35
2004-2013	DCS	Variance	0.02	0.01	0.02		0.02	0.02	0.01	0.01	0.02	0.01
2014	DCS	Variance	0.02	0.02	0.01		0.02	0.02	0.02	0.01	0.03	0.02
2004-2013	DCS	25th Percentile	0.21	0.21	0.21	1.00	0.25	0.19	0.21	0.20	0.34	0.24
2014	DCS	25th Percentile	0.24	0.23	0.22	1.00	0.29	0.22	0.17	0.22	0.40	0.26
2004-2013	DCS	Median	0.26	0.29	0.28	1.00	0.32	0.27	0.28	0.26	0.40	0.31
2014	DCS	Median	0.29	0.32	0.27	1.00	0.31	0.31	0.22	0.29	0.46	0.31
2004-2013	DCS	75th Percentile	0.36	0.40	0.39	1.00	0.46	0.39	0.34	0.34	0.53	0.43
2014	DCS	75th Percentile	0.40	0.40	0.39	1.00	0.51	0.43	0.32	0.37	0.59	0.46
2004-2013	DCS	Count	68	43	47	111	65	57	32	49	71	63
2014	DCS	Count	9	7	8	12	9	8	6	7	10	9
2004-2013	SIO2	Mean	15	15	14	15	18	16	15	5	9	6
2014	SIO2	Mean	10	7	6	14	12	8	5	3	7	5
2004-2013	SIO2	Variance	60	56	64	51	61	81	91	9	38	17
2014	SIO2	Variance	7	0	2	43	4	14	0	1	18	7
2004-2013	SIO2	25th Percentile	10	12	9	9	14	11	8	3	3	3
2014	SIO2	25th Percentile	9	7	5	8	11	5	5	2	4	3
2004-2013	SIO2	Median	14	15	14	14	18	15	13	4	8	4
2014	SIO2	Median	11	8	5	15	12	6	5	3	6	4
2004-2013	SIO2	75th Percentile	19	19	19	21	23	21	18	7	12	8
2014	SIO2	75th Percentile	12	8	7	19	14	10	5	3	9	6
2004-2013	SIO2	Count	39	28	33	110	44	36	17	25	80	34
2014	SIO2	Count	6	3	4	11	7	5	2	3	10	6

PERIOD	PARAMETER	STATISTIC	LOXA101	LOXA102	LOXA103	LOXA104	LOXA105	LOXA106	LOXA107	LOXA108	LOXA109	LOXA110
2004-2013	SO4	Mean	12.9	7.7	6.2	46.3	19.6	11.5	5.1	0.4	5.1	0.9
2014	SO4	Mean	9.3	3.4	2.4	50.4	19.0	9.5	1.2	0.4	3.0	0.4
2004-2013	SO4	Variance	196.1	173.2	166.9	473.6	362.3	224.2	119.0	0.4	63.3	2.8
2014	SO4	Variance	100.9	5.4	4.2	272.9	174.7	112.9	0.3	0.1	7.1	0.0
2004-2013	SO4	25th Percentile	3.1	1.3	1.0	31.3	5.0	2.2	0.7	0.1	1.1	0.4
2014	SO4	25th Percentile	4.2	1.8	1.3	39.3	9.1	3.3	1.0	0.2	1.5	0.2
2004-2013	SO4	Median	7.5	2.5	1.6	45.5	10.0	5.0	1.1	0.2	1.7	0.5
2014	SO4	Median	7.0	2.5	1.6	43.3	17.6	4.1	1.1	0.2	1.9	0.2
2004-2013	SO4	75th Percentile	16.3	5.7	3.5	62.0	32.5	13.5	2.0	0.5	5.8	0.7
2014	SO4	75th Percentile	10.0	4.2	2.2	55.1	22.0	12.1	1.1	0.5	3.5	0.6
2004-2013	SO4	Count	80	56	62	106	75	70	39	60	88	74
2014	SO4	Count	9	7	8	11	9	8	6	7	10	9
2004-2013	TDEPTH	Mean	0.23	0.22	0.26	1.10	0.25	0.22	0.20	0.19	0.32	0.21
2014	TDEPTH	Mean	0.27	0.22	0.24	NA	0.29	0.23	0.18	0.23	0.34	0.26
2004-2013	TDEPTH	Variance	0.01	0.01	0.09	0.19	0.02	0.02	0.01	0.01	0.01	0.01
2014	TDEPTH	Variance	0.01	0.01	0.01	NA	0.02	0.01	0.01	0.01	0.02	0.01
2004-2013	TDEPTH	25th Percentile	0.15	0.15	0.13	1.30	0.17	0.12	0.13	0.11	0.25	0.14
2014	TDEPTH	25th Percentile	0.17	0.15	0.17	NA	0.19	0.17	0.10	0.15	0.24	0.19
2004-2013	TDEPTH	Median	0.19	0.19	0.19	1.30	0.20	0.18	0.18	0.17	0.30	0.19
2014	TDEPTH	Median	0.24	0.17	0.22	NA	0.25	0.20	0.13	0.17	0.32	0.20
2004-2013	TDEPTH	75th Percentile	0.30	0.30	0.30	1.30	0.32	0.31	0.24	0.22	0.38	0.26
2014	TDEPTH	75th Percentile	0.35	0.29	0.31	NA	0.35	0.26	0.28	0.31	0.42	0.33
2004-2013	TDEPTH	Count	74	52	56	10	66	62	43	57	80	73
2014	TDEPTH	Count	9	7	8	0	9	8	6	7	10	9
2004-2013	TDOC	Mean	149	80	71	184	154	111	74	31	55	25
2014	TDOC	Mean	187	204	149	173	197	159	89	23	62	34
2004-2013	TDOC	Variance	1580	1841	1779	2452	1920	1570	1798	4094	570	54
2014	TDOC	Variance	1417	NA	8141	1191	3177	3245	2245	NA	1231	3
2004-2013	TDOC	25th Percentile	128	57	45	144	127	80	47	14	40	20
2014	TDOC	25th Percentile	165	204	117	149	196	143	72	23	41	33
2004-2013	TDOC	Median	151	64	58	183	150	102	53	16	48	23
2014	TDOC	Median	168	204	149	181	217	163	89	23	53	35
2004-2013	TDOC	75th Percentile	172	92	81	212	195	134	97	22	61	28
2014	TDOC	75th Percentile	199	204	181	191	225	179	105	23	66	35
2004-2013	TDOC	Count	36	27	31	99	39	32	15	24	69	31
2014	TDOC	Count	3	1	2	12	5	4	2	1	11	3

PERIOD	PARAMETER	STATISTIC	LOXA101	LOXA102	LOXA103	LOXA104	LOXA105	LOXA106	LOXA107	LOXA108	LOXA109	LOXA110
2004-2013	TDS	Mean	407	232	230	510	419	316	211	103	185	114
2014	TDS	Mean	301	114	165	546	338	221	101	100	172	113
2004-2013	TDS	Variance	11503	17929	18880	21312	20652	17883	21210	546	8096	1473
2014	TDS	Variance	19007	234	11001	8490	21246	26235	50	472	6242	752
2004-2013	TDS	25th Percentile	325	150	130	415	302	198	130	89	120	89
2014	TDS	25th Percentile	216	109	110	486	242	121	99	91	111	90
2004-2013	TDS	Median	400	185	205	520	433	295	160	100	157	111
2014	TDS	Median	282	122	114	539	306	164	101	104	151	111
2004-2013	TDS	75th Percentile	506	249	269	597	550	412	200	113	232	127
2014	TDS	75th Percentile	300	123	168	607	437	213	104	112	197	126
2004-2013	TDS	Count	39	27	32	111	44	36	17	24	80	34
2014	TDS	Count	6	3	4	11	7	5	2	3	10	6
2004-2013	TOC	Mean	31	25	27	30	31	26	24	25	23	22
2014	TOC	Mean	21	15	19	27	22	18	17	22	18	18
2004-2013	TOC	Variance	50	60	48	59	43	32	28	30	30	39
2014	TOC	Variance	10	2	14	20	32	19	5	8	10	10
2004-2013	TOC	25th Percentile	29	21	22	25	26	21	21	21	19	18
2014	TOC	25th Percentile	19	14	16	24	17	15	16	21	16	17
2004-2013	TOC	Median	31	23	26	30	33	26	23	23	22	20
2014	TOC	Median	21	15	17	26	24	16	17	23	18	18
2004-2013	TOC	75th Percentile	35	29	31	35	34	31	28	28	25	24
2014	TOC	75th Percentile	22	16	20	30	26	20	17	24	19	20
2004-2013	TOC	Count	39	28	33	109	43	35	17	25	78	33
2014	TOC	Count	6	3	4	11	7	5	2	3	10	6
2004-2013	DO	Mean	2.9	3.7	2.6	4.9	2.8	3.2	2.8	4.9	2.9	5.1
2014	DO	Mean	1.9	4.4	2.8	4.8	2.4	3.0	1.9	6.0	1.6	4.4
2004-2013	DO	Variance	3.2	3.9	2.3	3.4	3.2	2.8	2.1	6.4	3.3	4.4
2014	DO	Variance	1.2	3.9	3.6	1.6	2.9	1.2	0.8	2.9	0.8	2.4
2004-2013	DO	25th Percentile	1.6	2.3	1.6	3.6	1.6	2.2	1.9	2.8	1.6	3.5
2014	DO	25th Percentile	1.1	3.3	1.7	4.1	1.2	2.2	1.1	5.2	0.9	3.1
2004-2013	DO	Median	2.6	3.6	2.3	5.1	2.3	3.0	2.4	4.6	2.4	5.1
2014	DO	Median	1.7	3.9	2.3	4.6	2.0	2.7	2.2	5.4	1.5	4.2
2004-2013	DO	75th Percentile	4.1	4.7	3.3	6.3	3.6	4.1	3.6	6.5	3.8	6.5
2014	DO	75th Percentile	2.4	4.7	3.0	5.3	3.3	3.1	2.5	6.3	2.2	6.0
2004-2013	DO	Count	78	54	60	109	76	70	41	60	88	75
2014	DO	Count	9	7	8	11	9	8	6	7	10	9

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PERIOD	PARAMETER	STATISTIC	LOXA101	LOXA102	LOXA103	LOXA104	LOXA105	LOXA106	LOXA107	LOXA108	LOXA109	LOXA110
2004-2013	OPO4	Mean	0.012	0.007	0.007	0.023	0.014	0.006	0.008	0.004	0.006	0.006
2014	OPO4	Mean	0.004	0.003	0.003	0.005	0.007	0.005	0.003	0.002	0.003	0.003
2004-2013	OPO4	Variance	0.001	0.000	0.000	0.002	0.001	0.000	0.000	0.000	0.000	0.000
2014	OPO4	Variance	0.000	0.000	0.000	0.000	0.000	0.000	0.000		0.000	0.000
2004-2013	OPO4	25th Percentile	0.003	0.003	0.003	0.004	0.003	0.003	0.003	0.003	0.003	0.002
2014	OPO4	25th Percentile	0.003	0.002	0.002	0.004	0.004	0.003	0.003	0.002	0.002	0.002
2004-2013	OPO4	Median	0.004	0.004	0.004	0.007	0.004	0.003	0.003	0.003	0.004	0.003
2014	OPO4	Median	0.004	0.003	0.003	0.005	0.006	0.004	0.003	0.002	0.003	0.003
2004-2013	OPO4	75th Percentile	0.006	0.005	0.006	0.019	0.007	0.005	0.005	0.004	0.005	0.004
2014	OPO4	75th Percentile	0.006	0.004	0.004	0.006	0.007	0.007	0.004	0.002	0.004	0.003
2004-2013	OPO4	Count	37	26	31	102	43	34	17	24	76	33
2014	OPO4	Count	6	3	4	12	7	5	2	3	10	6
2004-2013	PH	Mean	7.1	6.8	6.8	7.6	7.0	6.9	6.7	6.7	6.7	6.8
2014	PH	Mean	6.8	6.8	6.9	7.7	6.8	6.8	6.7	6.7	6.6	6.8
2004-2013	PH	Variance	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.1	0.2
2014	PH	Variance	0.1	0.1	0.2	0.0	0.1	0.1	0.0	0.1	0.1	0.2
2004-2013	PH	25th Percentile	6.9	6.6	6.6	7.5	6.7	6.7	6.5	6.4	6.5	6.5
2014	PH	25th Percentile	6.5	6.7	6.6	7.5	6.7	6.6	6.5	6.5	6.3	6.4
2004-2013	PH	Median	7.0	6.8	6.8	7.6	7.0	6.9	6.6	6.6	6.6	6.7
2014	PH	Median	6.7	6.8	6.9	7.7	6.9	6.7	6.7	6.9	6.5	6.7
2004-2013	PH	75th Percentile	7.2	7.0	7.0	7.8	7.2	7.1	6.8	6.9	6.8	6.9
2014	PH	75th Percentile	6.9	7.0	7.1	7.8	7.0	6.9	6.8	6.9	6.8	7.0
2004-2013	PH	Count	79	55	61	111	77	71	42	59	91	77
2014	PH	Count	9	7	8	12	9	8	6	7	10	9
2004-2013	SPCOND	Mean	606	293	274	797	555	395	234	145	253	139
2014	SPCOND	Mean	477	277	244	860	527	383	190	130	245	132
2004-2013	SPCOND	Variance	38428	25173	30615	55955	55412	38567	21806	2258	20102	2576
2014	SPCOND	Variance	45214	31457	22300	23060	79937	66517	10271	2259	16009	1410
2004-2013	SPCOND	25th Percentile	443	198	163	669	362	237	153	110	149	108
2014	SPCOND	25th Percentile	290	156	146	747	273	212	127	101	151	107
2004-2013	SPCOND	Median	600	246	207	818	484	351	185	135	205	130
2014	SPCOND	Median	450	205	160	863	483	293	138	115	186	138
2004-2013	SPCOND	75th Percentile	749	325	315	951	776	521	220	177	323	160
2014	SPCOND	75th Percentile	487	364	313	938	843	463	229	152	296	155
2004-2013	SPCOND	Count	80	56	62	110	76	70	42	61	90	76
2014	SPCOND	Count	9	7	8	12	9	8	6	7	10	9

PERIOD	PARAMETER	STATISTIC	LOXA101	LOXA102	LOXA103	LOXA104	LOXA105	LOXA106	LOXA107	LOXA108	LOXA109	LOXA110
2004-2013	TEMP	Mean	23	23	22	25	23	24	23	25	24	24
2014	TEMP	Mean	23	22	22	26	23	22	23	25	23	24
2004-2013	TEMP	Variance	20	20	22	21	22	20	18	21	20	19
2014	TEMP	Variance	17	20	16	18	21	17	13	19	17	24
2004-2013	TEMP	25th Percentile	20	20	19	22	21	21	21	21	21	21
2014	TEMP	25th Percentile	19	19	19	23	20	19	20	23	21	22
2004-2013	TEMP	Median	23	22	22	26	23	24	23	25	24	25
2014	TEMP	Median	20	21	20	26	23	21	24	25	22	22
2004-2013	TEMP	75th Percentile	27	26	26	29	27	27	27	29	28	28
2014	TEMP	75th Percentile	27	26	26	30	26	26	26	27	27	28
2004-2013	TEMP	Count	80	56	62	111	77	71	42	61	91	77
2014	TEMP	Count	9	7	8	11	9	8	6	7	10	9
2004-2013	TN	Mean	1.6	1.2	1.3	1.9	1.7	1.3	1.1	1.3	1.2	1.2
2014	TN	Mean	1.2	0.8	1.0	1.7	1.2	0.9	1.1	1.4	1.0	1.2
2004-2013	TN	Variance	0.2	0.2	0.2	0.4	0.3	0.3	0.1	0.1	0.1	0.1
2014	TN	Variance	0.1	0.0	0.0	0.1	0.1	0.1	0.0	0.1	0.0	0.1
2004-2013	TN	25th Percentile	1.3	0.9	1.0	1.6	1.3	1.1	1.0	1.1	1.0	1.0
2014	TN	25th Percentile	1.0	0.8	0.8	1.5	0.9	0.7	1.1	1.3	0.8	1.0
2004-2013	TN	Median	1.5	1.0	1.1	1.8	1.7	1.2	1.1	1.3	1.1	1.2
2014	TN	Median	1.2	0.8	0.9	1.7	1.3	0.9	1.1	1.5	1.0	1.3
2004-2013	TN	75th Percentile	1.7	1.4	1.3	2.2	1.9	1.5	1.3	1.4	1.3	1.4
2014	TN	75th Percentile	1.2	0.8	1.0	1.8	1.5	1.0	1.1	1.6	1.2	1.4
2004-2013	TN	Count	39	28	33	110	43	35	18	25	80	34
2014	TN	Count	6	3	4	11	7	5	2	3	10	6

PERIOD	PARAMETER	STATISTIC	LOXA101	LOXA102	LOXA103	LOXA104	LOXA105	LOXA106	LOXA107	LOXA108	LOXA109	LOXA110
2004-2013	TP	Mean	0.019	0.010	0.011	0.059	0.024	0.012	0.010	0.007	0.010	0.009
2014	TP	Mean	0.015	0.008	0.007	0.023	0.015	0.009	0.008	0.007	0.007	0.006
2004-2013	TP	Variance	0.001	0.000	0.000	0.010	0.001	0.000	0.000	0.000	0.000	0.000
2014	TP	Variance	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
2004-2013	TP	25th Percentile	0.009	0.007	0.008	0.027	0.012	0.007	0.006	0.005	0.007	0.006
2014	TP	25th Percentile	0.013	0.007	0.006	0.019	0.014	0.007	0.006	0.006	0.006	0.004
2004-2013	TP	Median	0.013	0.010	0.010	0.035	0.017	0.010	0.008	0.006	0.008	0.007
2014	TP	Median	0.014	0.008	0.007	0.021	0.015	0.009	0.007	0.007	0.008	0.006
2004-2013	TP	75th Percentile	0.020	0.012	0.012	0.055	0.023	0.014	0.012	0.008	0.011	0.010
2014	TP	75th Percentile	0.017	0.009	0.009	0.026	0.017	0.010	0.009	0.008	0.009	0.007
2004-2013	TP	Count	83	56	62	111	79	71	42	62	91	76
2014	TP	Count	9	7	8	12	9	8	6	7	10	9
2004-2013	TSS	Mean	3.7	3.3	3.5	4.8	3.7	3.5	3.7	3.9	3.6	3.8
2014	TSS	Mean	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
2004-2013	TSS	Variance	5.2	2.2	2.7	4.7	3.3	2.3	10.7	2.7	3.2	2.6
2014	TSS	Variance	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2004-2013	TSS	25th Percentile	2.0	2.0	1.7	3.0	1.7	1.6	1.6	2.1	2.0	2.0
2014	TSS	25th Percentile	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
2004-2013	TSS	Median	3.7	3.0	3.0	5.0	4.0	3.5	3.0	5.0	3.0	5.0
2014	TSS	Median	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
2004-2013	TSS	75th Percentile	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
2014	TSS	75th Percentile	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
2004-2013	TSS	Count	72	49	54	111	70	64	35	54	88	67
2014	TSS	Count	9	7	8	11	9	8	6	7	10	9

PERIOD	PARAMETER	STATISTIC	LOXA111	LOXA112	LOXA113	LOXA114	LOXA115	LOXA116	LOXA117	LOXA118	LOXA119	LOXA120
2004-2013	ALK	Mean	28	46	24	20	176	169	100	51	30	20
2014	ALK	Mean	19	37	19	16	187		120	42	32	21
2004-2013	ALK	Variance	87	408	53	37	2396	3803	1735	690	80	43
2014	ALK	Variance	31	122	17	10	1407		649	208	134	28
2004-2013	ALK	25th Percentile	23	34	17	15	140	141	70	31	25	16
2014	ALK	25th Percentile	16	32	15	13	155		108	33	28	17
2004-2013	ALK	Median	28	40	24	20	173	176	96	45	30	18
2014	ALK	Median	20	34	20	16	190		110	37	29	21
2004-2013	ALK	75th Percentile	33	53	28	24	202	216	130	63	37	24
2014	ALK	75th Percentile	24	40	22	18	200		133	44	34	24
2004-2013	ALK	Count	50	65	51	51	111	34	66	82	79	93
2014	ALK	Count	6	9	7	8	10	0	7	10	10	10
2004-2013	CA	Mean	9	14	7	7	57	55	31	17	9	7
2014	CA	Mean	6	12	6	6	60		38	13	9	7
2004-2013	CA	Variance	19	46	5	19	338	489	222	76	11	18
2014	CA	Variance	1	12	1	3	193		56	18	5	2
2004-2013	CA	25th Percentile	6	10	6	5	45	43	19	10	7	5
2014	CA	25th Percentile	6	10	5	5	48		32	11	8	6
2004-2013	CA	Median	8	12	7	6	55	53	30	13	8	6
2014	CA	Median	6	11	6	6	59		39	12	8	7
2004-2013	CA	75th Percentile	10	17	9	8	68	70	43	22	11	8
2014	CA	75th Percentile	7	12	6	6	67		45	15	9	7
2004-2013	CA	Count	50	65	51	51	111	33	67	82	80	90
2014	CA	Count	6	9	7	8	11	0	7	10	10	10
2004-2013	CL	Mean	19	31	20	19	107	88	60	33	19	23
2014	CL	Mean	16	27	16	16	120		71	28	20	20
2004-2013	CL	Variance	103	563	78	44	1449	1617	1398	685	67	101
2014	CL	Variance	42	333	56	53	102		463	258	189	42
2004-2013	CL	25th Percentile	13	15	13	13	85	68	29	16	13	16
2014	CL	25th Percentile	11	15	11	11	117		58	19	12	17
2004-2013	CL	Median	18	22	17	18	111	94	52	22	18	21
2014	CL	Median	15	17	15	14	120		71	20	18	20
2004-2013	CL	75th Percentile	23	38	23	22	137	110	88	38	24	27
2014	CL	75th Percentile	19	34	20	20	125		79	35	21	24
2004-2013	CL	Count	80	85	85	83	111	34	90	94	96	103
2014	CL	Count	10	10	10	10	10	0	10	10	11	10

PERIOD	PARAMETER	STATISTIC	LOXA111	LOXA112	LOXA113	LOXA114	LOXA115	LOXA116	LOXA117	LOXA118	LOXA119	LOXA120
2004-2013	DCS	Mean	0.38	0.43	0.39	0.39	1.00	0.86	0.41	0.46	0.45	0.49
2014	DCS	Mean	0.39	0.46	0.39	0.39	1.00		0.44	0.45	0.43	0.50
2004-2013	DCS	Variance	0.01	0.02	0.01	0.02		0.09	0.02	0.02	0.02	0.02
2014	DCS	Variance	0.02	0.02	0.02	0.01			0.02	0.03	0.02	0.02
2004-2013	DCS	25th Percentile	0.30	0.33	0.32	0.31	1.00	0.83	0.33	0.36	0.36	0.40
2014	DCS	25th Percentile	0.27	0.38	0.30	0.33	1.00		0.35	0.39	0.34	0.42
2004-2013	DCS	Median	0.37	0.41	0.36	0.35	1.00	0.91	0.38	0.45	0.43	0.50
2014	DCS	Median	0.36	0.42	0.35	0.39	1.00		0.41	0.42	0.40	0.45
2004-2013	DCS	75th Percentile	0.45	0.52	0.48	0.45	1.00	1.00	0.50	0.54	0.53	0.58
2014	DCS	75th Percentile	0.49	0.57	0.49	0.44	1.00		0.55	0.56	0.56	0.60
2004-2013	DCS	Count	68	69	69	69	111	15	72	75	75	81
2014	DCS	Count	10	10	10	10	11	0	10	11	12	11
2004-2013	SIO2	Mean	5	7	5	4	16	16	14	9	7	5
2014	SIO2	Mean	3	5	2	2	17		17	6	4	5
2004-2013	SIO2	Variance	15	21	10	8	54	54	47	32	16	4
2014	SIO2	Variance	1	10	2	1	38		13	8	2	1
2004-2013	SIO2	25th Percentile	2	4	3	2	11	9	8	5	4	3
2014	SIO2	25th Percentile	3	3	2	1	12		15	4	3	3
2004-2013	SIO2	Median	4	6	4	3	16	17	13	8	6	5
2014	SIO2	Median	3	5	2	2	19		19	7	4	5
2004-2013	SIO2	75th Percentile	6	9	6	5	21	23	19	12	8	6
2014	SIO2	75th Percentile	4	5	3	3	22		19	9	4	5
2004-2013	SIO2	Count	50	65	51	51	110	33	66	81	80	92
2014	SIO2	Count	6	9	7	8	10	0	7	10	10	10

PERIOD	PARAMETER	STATISTIC	LOXA111	LOXA112	LOXA113	LOXA114	LOXA115	LOXA116	LOXA117	LOXA118	LOXA119	LOXA120
2004-2013	SO4	Mean	1.0	2.8	0.5	0.3	48.9	33.0	12.7	3.8	0.7	0.2
2014	SO4	Mean	0.7	1.6	0.4	0.3	56.7		16.0	2.0	0.6	0.2
2004-2013	SO4	Variance	4.9	21.9	0.4	0.0	542.8	587.3	186.1	23.5	0.3	0.0
2014	SO4	Variance	0.0	1.3	0.0	0.0	230.1		156.6	1.7	0.1	0.0
2004-2013	SO4	25th Percentile	0.5	0.7	0.2	0.1	33.5	14.7	2.7	0.9	0.5	0.1
2014	SO4	25th Percentile	0.6	1.0	0.2	0.2	43.7		5.4	1.4	0.4	0.2
2004-2013	SO4	Median	0.6	1.1	0.4	0.2	47.5	23.6	7.1	1.8	0.6	0.2
2014	SO4	Median	0.8	1.1	0.4	0.2	55.9		12.9	1.5	0.6	0.2
2004-2013	SO4	75th Percentile	0.7	2.6	0.6	0.5	65.0	50.8	18.6	5.1	0.8	0.2
2014	SO4	75th Percentile	0.8	1.6	0.5	0.4	69.5		27.5	1.8	0.8	0.2
2004-2013	SO4	Count	80	84	84	82	110	34	90	94	96	103
2014	SO4	Count	10	10	10	10	10	0	10	10	11	10
2004-2013	TDEPTH	Mean	0.24	0.28	0.24	0.24	1.20	0.49	0.27	0.32	0.32	0.35
2014	TDEPTH	Mean	0.25	0.30	0.26	0.28	NA		0.27	0.32	0.31	0.34
2004-2013	TDEPTH	Variance	0.01	0.01	0.01	0.01	0.09	0.07	0.01	0.02	0.02	0.02
2014	TDEPTH	Variance	0.02	0.03	0.01	0.02	NA		0.02	0.01	0.02	0.01
2004-2013	TDEPTH	25th Percentile	0.17	0.19	0.17	0.15	1.30	0.30	0.19	0.25	0.23	0.27
2014	TDEPTH	25th Percentile	0.14	0.20	0.18	0.21	NA		0.18	0.27	0.23	0.26
2004-2013	TDEPTH	Median	0.21	0.26	0.21	0.23	1.30	0.42	0.25	0.30	0.30	0.34
2014	TDEPTH	Median	0.21	0.27	0.22	0.25	NA		0.25	0.29	0.28	0.30
2004-2013	TDEPTH	75th Percentile	0.31	0.35	0.30	0.30	1.30	0.63	0.35	0.41	0.42	0.44
2014	TDEPTH	75th Percentile	0.36	0.42	0.36	0.35	NA		0.33	0.37	0.36	0.41
2004-2013	TDEPTH	Count	78	83	81	82	9	29	85	86	83	89
2014	TDEPTH	Count	10	10	10	10	0	0	10	10	11	10
2004-2013	TDOC	Mean	29	46	24	20	177	169	101	52	30	20
2014	TDOC	Mean	27	51	23	19	169		99	44	28	20
2004-2013	TDOC	Variance	99	431	59	41	2510	3803	1817	777	83	47
2014	TDOC	Variance	34	229	27	9	1543		1377	137	61	18
2004-2013	TDOC	25th Percentile	23	33	17	15	140	141	69	31	25	16
2014	TDOC	25th Percentile	23	41	21	17	148		74	36	23	17
2004-2013	TDOC	Median	28	40	24	20	176	176	97	43	30	18
2014	TDOC	Median	28	44	24	19	168		80	46	30	21
2004-2013	TDOC	75th Percentile	33	53	28	26	204	216	130	66	37	25
2014	TDOC	75th Percentile	30	60	27	21	181		135	52	35	22
2004-2013	TDOC	Count	41	58	43	45	99	34	57	70	68	81
2014	TDOC	Count	9	7	8	6	12	0	9	12	11	12

PERIOD	PARAMETER	STATISTIC	LOXA111	LOXA112	LOXA113	LOXA114	LOXA115	LOXA116	LOXA117	LOXA118	LOXA119	LOXA120
2004-2013	TDS	Mean	99	149	93	90	490	446	292	155	104	99
2014	TDS	Mean	81	132	81	80	538		352	140	99	100
2004-2013	TDS	Variance	1709	5257	858	699	23637	37694	20647	7349	814	979
2014	TDS	Variance	476	2199	359	335	4725		5865	2520	475	634
2004-2013	TDS	25th Percentile	72	102	72	73	398	341	162	97	84	78
2014	TDS	25th Percentile	69	100	71	66	489		284	110	88	80
2004-2013	TDS	Median	90	127	88	90	498	450	270	122	97	93
2014	TDS	Median	78	122	81	82	519		348	133	95	99
2004-2013	TDS	75th Percentile	113	184	110	101	605	560	405	189	120	110
2014	TDS	75th Percentile	89	136	94	93	566		419	156	100	110
2004-2013	TDS	Count	50	65	51	51	111	34	66	82	80	93
2014	TDS	Count	6	9	7	8	10	0	7	10	10	10
2004-2013	TOC	Mean	17	20	18	19	29	29	26	20	19	18
2014	TOC	Mean	14	16	14	15	27		25	16	16	16
2004-2013	TOC	Variance	19	26	21	22	48	39	37	35	34	18
2014	TOC	Variance	2	5	4	4	9		16	4	10	10
2004-2013	TOC	25th Percentile	15	17	15	16	25	26	22	16	15	15
2014	TOC	25th Percentile	14	15	13	14	24		22	14	14	14
2004-2013	TOC	Median	16	19	17	18	30	30	26	18	18	17
2014	TOC	Median	14	16	14	16	27		23	15	16	16
2004-2013	TOC	75th Percentile	19	21	20	20	34	33	31	22	22	20
2014	TOC	75th Percentile	14	17	16	17	30		27	17	18	17
2004-2013	TOC	Count	49	64	50	51	109	33	64	80	78	91
2014	TOC	Count	6	9	7	8	10	0	7	10	10	10
2004-2013	DO	Mean	3.9	3.0	4.2	3.6	4.9	1.4	2.0	2.8	4.4	5.5
2014	DO	Mean	4.4	2.5	5.7	5.1	4.8		1.3	2.3	4.8	5.7
2004-2013	DO	Variance	3.4	2.5	3.5	3.7	3.3	0.6	2.5	2.0	3.3	4.5
2014	DO	Variance	3.6	1.1	3.9	3.6	1.7		0.5	1.8	3.8	5.6
2004-2013	DO	25th Percentile	2.5	1.8	2.8	2.3	3.8	0.7	1.0	1.9	3.4	4.0
2014	DO	25th Percentile	3.7	1.6	3.9	3.8	4.0		1.1	1.2	3.4	4.1
2004-2013	DO	Median	3.6	2.6	4.0	3.4	5.1	1.4	1.5	2.6	4.4	5.5
2014	DO	Median	4.1	2.3	5.5	5.0	4.3		1.4	2.3	4.3	5.4
2004-2013	DO	75th Percentile	4.9	3.8	5.4	4.6	6.2	1.9	2.3	3.5	5.7	6.9
2014	DO	75th Percentile	5.3	2.9	7.2	6.2	5.9		1.5	3.4	5.8	7.3
2004-2013	DO	Count	80	84	85	85	107	32	88	93	94	101
2014	DO	Count	10	10	9	9	10	0	10	10	11	10

PERIOD	PARAMETER	STATISTIC	LOXA111	LOXA112	LOXA113	LOXA114	LOXA115	LOXA116	LOXA117	LOXA118	LOXA119	LOXA120
2004-2013	OPO4	Mean	0.004	0.007	0.004	0.005	0.019	0.020	0.007	0.005	0.005	0.004
2014	OPO4	Mean	0.003	0.003	0.003	0.002	0.006		0.006	0.003	0.002	0.002
2004-2013	OPO4	Variance	0.000	0.000	0.000	0.000	0.001	0.001	0.000	0.000	0.000	0.000
2014	OPO4	Variance	0.000	0.000	0.000	0.000	0.000		0.000	0.000	0.000	0.000
2004-2013	OPO4	25th Percentile	0.002	0.003	0.002	0.002	0.004	0.004	0.003	0.003	0.002	0.002
2014	OPO4	25th Percentile	0.002	0.002	0.002	0.002	0.003		0.004	0.002	0.002	0.002
2004-2013	OPO4	Median	0.003	0.003	0.003	0.003	0.007	0.007	0.004	0.003	0.003	0.003
2014	OPO4	Median	0.002	0.002	0.003	0.002	0.005		0.006	0.002	0.002	0.002
2004-2013	OPO4	75th Percentile	0.004	0.004	0.004	0.004	0.016	0.013	0.006	0.005	0.004	0.004
2014	OPO4	75th Percentile	0.003	0.004	0.003	0.002	0.006		0.008	0.003	0.002	0.002
2004-2013	OPO4	Count	49	62	50	51	105	30	65	79	78	89
2014	OPO4	Count	6	9	7	8	11	0	7	10	10	10
2004-2013	PH	Mean	6.6	6.7	6.7	6.6	7.6	7.1	6.7	6.6	6.7	6.6
2014	PH	Mean	6.5	6.6	6.6	6.6	7.6		6.8	6.7	7.0	6.9
2004-2013	PH	Variance	0.2	0.2	0.3	0.3	0.1	0.1	0.1	0.1	0.1	0.2
2014	PH	Variance	0.1	0.1	0.1	0.1	0.1		0.1	0.2	0.2	0.3
2004-2013	PH	25th Percentile	6.3	6.5	6.4	6.3	7.5	7.0	6.5	6.4	6.4	6.4
2014	PH	25th Percentile	6.3	6.3	6.4	6.5	7.3		6.7	6.4	6.5	6.4
2004-2013	PH	Median	6.5	6.6	6.6	6.5	7.6	7.2	6.8	6.6	6.6	6.6
2014	PH	Median	6.5	6.5	6.5	6.6	7.6		6.8	6.7	7.1	6.9
2004-2013	PH	75th Percentile	6.8	6.9	6.9	6.9	7.8	7.2	7.0	6.8	6.9	6.9
2014	PH	75th Percentile	6.8	6.9	6.8	6.7	7.7		7.0	7.0	7.2	7.3
2004-2013	PH	Count	82	87	88	88	108	33	89	93	94	101
2014	PH	Count	10	10	10	10	11	0	10	11	12	11
2004-2013	SPCOND	Mean	141	206	133	117	772	682	409	225	131	129
2014	SPCOND	Mean	106	165	102	97	815		491	206	145	126
2004-2013	SPCOND	Variance	11720	15994	9095	1368	55630	79141	50643	19796	2126	2941
2014	SPCOND	Variance	1078	6434	1181	995	10618		17039	7221	6876	2100
2004-2013	SPCOND	25th Percentile	96	119	91	90	630	556	219	124	102	98
2014	SPCOND	25th Percentile	86	120	84	79	747		416	138	102	102
2004-2013	SPCOND	Median	121	160	114	115	783	700	367	173	120	113
2014	SPCOND	Median	104	132	99	94	808		468	191	119	115
2004-2013	SPCOND	75th Percentile	151	254	141	132	963	861	605	279	155	147
2014	SPCOND	75th Percentile	120	173	115	109	882		574	257	151	139
2004-2013	SPCOND	Count	81	87	87	87	108	33	89	93	92	99
2014	SPCOND	Count	10	10	10	10	11	0	10	11	12	11

PERIOD	PARAMETER	STATISTIC	LOXA111	LOXA112	LOXA113	LOXA114	LOXA115	LOXA116	LOXA117	LOXA118	LOXA119	LOXA120
2004-2013	TEMP	Mean	23	24	24	24	25	23	23	24	24	25
2014	TEMP	Mean	23	23	24	24	26		22	23	24	24
2004-2013	TEMP	Variance	20	20	21	19	16	16	19	19	20	17
2014	TEMP	Variance	21	22	23	23	20		16	18	20	22
2004-2013	TEMP	25th Percentile	21	21	21	21	22	20	20	21	22	22
2014	TEMP	25th Percentile	20	21	21	21	22		20	20	21	21
2004-2013	TEMP	Median	24	24	24	25	26	22	22	23	24	26
2014	TEMP	Median	22	22	23	23	27		20	22	23	23
2004-2013	TEMP	75th Percentile	27	28	28	27	29	27	26	27	28	28
2014	TEMP	75th Percentile	28	27	28	27	30		26	27	27	27
2004-2013	TEMP	Count	82	87	88	88	109	34	89	94	95	102
2014	TEMP	Count	10	10	10	10	10	0	10	10	11	10
2004-2013	TN	Mean	1.0	1.1	1.0	1.0	1.8	2.0	1.2	1.0	1.1	1.2
2014	TN	Mean	0.8	0.9	0.9	1.0	1.7		1.2	0.9	1.0	1.1
2004-2013	TN	Variance	0.1	0.1	0.1	0.1	0.3	0.4	0.1	0.1	0.8	0.7
2014	TN	Variance	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0
2004-2013	TN	25th Percentile	0.8	1.0	0.9	0.9	1.5	1.7	1.0	0.8	0.8	0.9
2014	TN	25th Percentile	0.8	0.8	0.8	0.8	1.5		1.1	0.8	0.8	1.0
2004-2013	TN	Median	0.9	1.0	1.1	1.0	1.8	2.0	1.1	0.9	1.0	1.1
2014	TN	Median	0.8	0.9	0.9	1.0	1.6		1.2	0.8	1.0	1.1
2004-2013	TN	75th Percentile	1.1	1.2	1.1	1.2	2.1	2.2	1.6	1.1	1.2	1.3
2014	TN	75th Percentile	0.9	1.0	1.0	1.1	1.8		1.3	0.9	1.1	1.2
2004-2013	TN	Count	50	65	51	51	110	33	65	81	80	93
2014	TN	Count	6	9	7	8	10	0	7	10	10	10

PERIOD	PARAMETER	STATISTIC	LOXA111	LOXA112	LOXA113	LOXA114	LOXA115	LOXA116	LOXA117	LOXA118	LOXA119	LOXA120
2004-2013	TP	Mean	0.008	0.009	0.007	0.007	0.042	0.056	0.015	0.009	0.009	0.010
2014	TP	Mean	0.006	0.006	0.006	0.006	0.020		0.014	0.007	0.012	0.005
2004-2013	TP	Variance	0.000	0.000	0.000	0.000	0.001	0.002	0.000	0.000	0.000	0.000
2014	TP	Variance	0.000	0.000	0.000	0.000	0.000		0.000	0.000	0.000	0.000
2004-2013	TP	25th Percentile	0.004	0.006	0.005	0.004	0.023	0.024	0.010	0.006	0.005	0.005
2014	TP	25th Percentile	0.004	0.005	0.004	0.005	0.018		0.011	0.005	0.004	0.004
2004-2013	TP	Median	0.006	0.008	0.006	0.006	0.031	0.047	0.013	0.008	0.007	0.006
2014	TP	Median	0.005	0.006	0.006	0.006	0.020		0.014	0.007	0.006	0.005
2004-2013	TP	75th Percentile	0.009	0.011	0.008	0.008	0.047	0.073	0.018	0.010	0.009	0.008
2014	TP	75th Percentile	0.008	0.007	0.007	0.008	0.022		0.016	0.009	0.008	0.006
2004-2013	TP	Count	82	87	88	87	111	34	91	96	97	103
2014	TP	Count	10	10	10	10	11	0	10	11	12	11
2004-2013	TSS	Mean	4.5	3.6	3.7	3.7	4.8	10.1	3.6	4.1	4.7	6.1
2014	TSS	Mean	5.0	5.0	5.0	5.0	5.0	0.0	5.0	5.0	4.8	5.0
2004-2013	TSS	Variance	23.1	2.2	2.8	3.3	17.8	140.5	4.6	21.2	84.4	291.8
2014	TSS	Variance	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.6	0.0
2004-2013	TSS	25th Percentile	2.0	2.1	2.0	2.0	3.0	3.0	1.6	2.0	2.0	2.0
2014	TSS	25th Percentile	5.0	5.0	5.0	5.0	5.0	0.0	5.0	5.0	5.0	5.0
2004-2013	TSS	Median	5.0	3.8	3.5	3.0	5.0	3.8	3.3	3.0	3.0	3.3
2014	TSS	Median	5.0	5.0	5.0	5.0	5.0	0.0	5.0	5.0	5.0	5.0
2004-2013	TSS	75th Percentile	5.0	5.0	5.0	5.0	5.0	11.0	5.0	5.0	5.0	5.0
2014	TSS	75th Percentile	5.0	5.0	5.0	5.0	5.0	0.0	5.0	5.0	5.0	5.0
2004-2013	TSS	Count	76	82	75	77	110	34	80	88	88	98
2014	TSS	Count	10	10	10	10	10	0	10	10	11	10

PERIOD	PARAMETER	STATISTIC	LOXA121	LOXA122	LOXA123	LOXA124	LOXA126	LOXA127	LOXA128	LOXA129	LOXA130
2004-2013	ALK	Mean	204	117	132	39	80	21	18	155	94
2014	ALK	Mean		100		32	73	15	15	198	128
2004-2013	ALK	Variance	537	2850	1998	272	1823	78	105	1834	1630
2014	ALK	Variance		735		339	1338	19	19	1318	1636
2004-2013	ALK	25th Percentile	193	75	112	28	45	15	13	122	63
2014	ALK	25th Percentile		89		23	49	14	12	164	94
2004-2013	ALK	Median	200	115	119	35	69	20	15	146	82
2014	ALK	Median		96		25	69	16	13	204	142
2004-2013	ALK	75th Percentile	216	159	133	46	107	23	20	188	119
2014	ALK	75th Percentile		115		31	80	17	15	223	146
2004-2013	ALK	Count	5	68	9	65	77	59	40	110	80
2014	ALK	Count	0	7	0	7	9	9	4	11	9
2004-2013	CA	Mean	67	37	41	16	27	8	6	55	32
2014	CA	Mean		32		11	25	7	5	70	44
2004-2013	CA	Variance	84	346	236	60	246	8	2	253	217
2014	CA	Variance		61		39	186	1	0	265	170
2004-2013	CA	25th Percentile	66	22	34	11	14	6	5	44	20
2014	CA	25th Percentile		29		8	14	6	4	56	33
2004-2013	CA	Median	68	36	36	14	23	7	6	53	28
2014	CA	Median		30		9	24	7	4	68	43
2004-2013	CA	75th Percentile	73	49	39	19	37	9	7	65	40
2014	CA	75th Percentile		36		12	27	7	5	76	55
2004-2013	CA	Count	5	68	10	65	77	59	39	109	79
2014	CA	Count	0	7	0	7	9	9	4	12	9
2004-2013	CL	Mean	100	55	65	34	54	23	19	98	55
2014	CL	Mean		60		26	52	19	17	137	92
2004-2013	CL	Variance	1609	1018	858	432	1019	84	40	1985	1051
2014	CL	Variance		791		363	1037	26	64	629	487
2004-2013	CL	25th Percentile	78	27	60	20	26	16	15	66	29
2014	CL	25th Percentile		46		14	24	16	11	120	77
2004-2013	CL	Median	98	51	66	28	47	20	19	95	46
2014	CL	Median		55		15	54	19	16	135	97
2004-2013	CL	75th Percentile	125	80	67	40	78	27	24	119	74
2014	CL	75th Percentile		75		36	64	21	22	146	107
2004-2013	CL	Count	10	88	13	93	92	86	78	110	94
2014	CL	Count	0	10	0	9	10	10	10	11	10

PERIOD	PARAMETER	STATISTIC	LOXA121	LOXA122	LOXA123	LOXA124	LOXA126	LOXA127	LOXA128	LOXA129	LOXA130
2004-2013	DCS	Mean	NA	0.40	NA	0.47	0.45	0.42	0.34	1.00	0.39
2014	DCS	Mean		0.45		0.52	0.53	0.44	0.33	1.00	0.45
2004-2013	DCS	Variance	NA	0.02	NA	0.02	0.02	0.02	0.01		0.02
2014	DCS	Variance		0.02		0.02	0.02	0.01	0.02		0.02
2004-2013	DCS	25th Percentile	NA	0.32	NA	0.37	0.37	0.34	0.27	1.00	0.30
2014	DCS	25th Percentile		0.36		0.39	0.46	0.37	0.28	1.00	0.36
2004-2013	DCS	Median	NA	0.39	NA	0.45	0.42	0.40	0.32	1.00	0.35
2014	DCS	Median		0.43		0.47	0.49	0.42	0.30	1.00	0.40
2004-2013	DCS	75th Percentile	NA	0.49	NA	0.57	0.53	0.51	0.41	1.00	0.46
2014	DCS	75th Percentile		0.56		0.65	0.62	0.52	0.37	1.00	0.53
2004-2013	DCS	Count		71		78	71	65	65	110	80
2014	DCS	Count	0	10	0	9	10	10	10	12	10
2004-2013	SIO2	Mean	16	12	15	5	8	6	4	9	8
2014	SIO2	Mean		12		5	8	4	2	12	11
2004-2013	SIO2	Variance	22	30	11	12	34	8	5	21	25
2014	SIO2	Variance		15		5	8	2	0	40	25
2004-2013	SIO2	25th Percentile	15	8	13	2	3	4	3	6	4
2014	SIO2	25th Percentile		11		3	6	4	2	8	6
2004-2013	SIO2	Median	17	12	15	4	6	6	3	9	7
2014	SIO2	Median		12		4	7	4	2	10	13
2004-2013	SIO2	75th Percentile	20	16	16	8	11	7	4	12	11
2014	SIO2	75th Percentile		15		5	10	5	2	16	14
2004-2013	SIO2	Count	5	68	9	65	77	59	40	110	80
2014	SIO2	Count	0	7	0	7	9	9	4	11	9

PERIOD	PARAMETER	STATISTIC	LOXA121	LOXA122	LOXA123	LOXA124	LOXA126	LOXA127	LOXA128	LOXA129	LOXA130
2004-2013	SO4	Mean	48.0	11.3	17.3	1.4	7.4	0.4	0.2	26.4	5.9
2014	SO4	Mean		8.8		0.8	6.8	0.3	0.2	51.1	11.9
2004-2013	SO4	Variance	612.2	176.0	207.3	6.1	110.9	0.8	0.0	337.5	71.8
2014	SO4	Variance		47.3		0.5	109.0	0.0	0.0	714.9	144.2
2004-2013	SO4	25th Percentile	39.9	2.1	10.3	0.4	1.0	0.1	0.1	11.5	1.1
2014	SO4	25th Percentile		4.0		0.2	1.6	0.2	0.2	34.4	3.0
2004-2013	SO4	Median	45.3	6.5	13.8	0.5	2.2	0.2	0.2	21.9	2.2
2014	SO4	Median		6.4		0.8	2.6	0.2	0.2	45.0	7.6
2004-2013	SO4	75th Percentile	48.6	15.1	18.1	0.9	9.3	0.5	0.2	37.0	5.4
2014	SO4	75th Percentile		14.1		0.8	4.0	0.2	0.2	69.2	18.4
2004-2013	SO4	Count	10	88	13	93	92	85	78	110	94
2014	SO4	Count	0	10	0	9	10	10	10	11	10
2004-2013	TDEPTH	Mean	0.21	0.28	0.29	0.29	0.31	0.27	0.21	1.08	0.31
2014	TDEPTH	Mean		0.30		0.30	0.34	0.28	0.21	NA	0.33
2004-2013	TDEPTH	Variance	0.01	0.01	0.03	0.02	0.01	0.01	0.01	0.21	0.01
2014	TDEPTH	Variance		0.02		0.02	0.01	0.01	0.02	NA	0.02
2004-2013	TDEPTH	25th Percentile	0.14	0.19	0.14	0.18	0.23	0.19	0.14	1.30	0.23
2014	TDEPTH	25th Percentile		0.20		0.20	0.26	0.23	0.10	NA	0.22
2004-2013	TDEPTH	Median	0.15	0.27	0.28	0.28	0.31	0.25	0.19	1.30	0.28
2014	TDEPTH	Median		0.28		0.23	0.34	0.25	0.17	NA	0.31
2004-2013	TDEPTH	75th Percentile	0.29	0.34	0.39	0.38	0.37	0.34	0.25	1.30	0.36
2014	TDEPTH	75th Percentile		0.35		0.40	0.39	0.32	0.29	NA	0.40
2004-2013	TDEPTH	Count	11	89	14	90	89	84	70	10	83
2014	TDEPTH	Count	0	10	0	9	10	10	10	0	10
2004-2013	TDOC	Mean	204	122	132	39	84	21	17	156	97
2014	TDOC	Mean		79		39	57	20	23	152	76
2004-2013	TDOC	Variance	537	2921	1998	292	1766	89	100	1825	1767
2014	TDOC	Variance		832		49	1672	17	131	2096	438
2004-2013	TDOC	25th Percentile	193	83	112	28	51	14	13	123	65
2014	TDOC	25th Percentile		62		34	34	16	16	122	59
2004-2013	TDOC	Median	200	120	119	35	72	20	15	146	82
2014	TDOC	Median		77		35	45	21	22	145	82
2004-2013	TDOC	75th Percentile	216	160	133	46	112	23	18	188	124
2014	TDOC	75th Percentile		89		40	47	23	25	185	89
2004-2013	TDOC	Count	5	60	9	60	66	50	35	99	69
2014	TDOC	Count	0	8	0	5	11	9	5	11	11

PERIOD	PARAMETER	STATISTIC	LOXA121	LOXA122	LOXA123	LOXA124	LOXA126	LOXA127	LOXA128	LOXA129	LOXA130
2004-2013	TDS	Mean	496	290	338	133	233	101	90	416	249
2014	TDS	Mean		271		119	224	97	69	568	360
2004-2013	TDS	Variance	2010	19761	19902	3103	14252	802	456	18811	12107
2014	TDS	Variance		6482		3859	11519	192	194	10487	7984
2004-2013	TDS	25th Percentile	478	170	279	98	128	81	77	314	166
2014	TDS	25th Percentile		243		81	150	85	65	487	287
2004-2013	TDS	Median	503	279	303	120	215	100	87	400	214
2014	TDS	Median		252		86	218	97	70	554	396
2004-2013	TDS	75th Percentile	506	399	331	150	313	120	101	514	323
2014	TDS	75th Percentile		313		135	261	108	74	617	418
2004-2013	TDS	Count	5	68	10	65	77	59	40	110	80
2014	TDS	Count	0	7	0	7	9	9	4	11	9
2004-2013	TOC	Mean	31	25	24	19	21	21	20	25	23
2014	TOC	Mean		22		14	18	17	14	25	24
2004-2013	TOC	Variance	3	32	16	10	23	19	30	36	34
2014	TOC	Variance		7		9	8	9	3	23	15
2004-2013	TOC	25th Percentile	30	21	22	17	17	17	16	21	19
2014	TOC	25th Percentile		22		13	17	15	13	23	22
2004-2013	TOC	Median	31	25	23	19	21	21	19	25	22
2014	TOC	Median		22		13	19	16	15	24	24
2004-2013	TOC	75th Percentile	31	29	26	21	25	24	23	30	28
2014	TOC	75th Percentile		24		15	20	19	15	28	26
2004-2013	TOC	Count	5	66	10	65	77	59	40	110	80
2014	TOC	Count	0	7	0	7	9	9	4	11	9
2004-2013	DO	Mean	0.9	1.9	1.6	2.1	3.3	4.0	4.6	3.7	2.4
2014	DO	Mean		0.9		1.7	2.7	3.3	4.4	4.4	0.8
2004-2013	DO	Variance	0.4	2.6	1.4	2.1	3.9	4.6	4.3	3.6	2.1
2014	DO	Variance		0.5		1.1	5.6	3.9	5.6	2.5	0.3
2004-2013	DO	25th Percentile	0.5	0.9	0.8	1.1	1.8	2.2	3.3	2.2	1.4
2014	DO	25th Percentile		0.4		0.8	1.5	1.9	3.6	3.2	0.4
2004-2013	DO	Median	0.7	1.4	1.1	1.8	3.1	3.7	4.4	3.5	2.2
2014	DO	Median		0.7		1.6	2.0	2.3	4.3	3.4	0.7
2004-2013	DO	75th Percentile	1.0	2.2	2.1	2.5	4.3	5.0	5.8	5.1	3.1
2014	DO	75th Percentile		1.5		2.5	3.4	4.3	5.9	5.4	0.9
2004-2013	DO	Count	10	88	12	88	89	83	78	106	90
2014	DO	Count	0	10	0	9	10	10	9	11	10

PERIOD	PARAMETER	STATISTIC	LOXA121	LOXA122	LOXA123	LOXA124	LOXA126	LOXA127	LOXA128	LOXA129	LOXA130
2004-2013	OPO4	Mean	0.039	0.005	0.004	0.008	0.005	0.006	0.005	0.021	0.007
2014	OPO4	Mean		0.005		0.003	0.003	0.003	0.002	0.005	0.003
2004-2013	OPO4	Variance	0.002	0.000	0.000	0.000	0.000	0.000	0.000	0.003	0.000
2014	OPO4	Variance		0.000		0.000	0.000	0.000		0.000	0.000
2004-2013	OPO4	25th Percentile	0.014	0.003	0.004	0.003	0.002	0.003	0.003	0.004	0.002
2014	OPO4	25th Percentile		0.003		0.002	0.002	0.002	0.002	0.003	0.003
2004-2013	OPO4	Median	0.022	0.003	0.004	0.004	0.003	0.003	0.003	0.008	0.003
2014	OPO4	Median		0.005		0.002	0.002	0.002	0.002	0.004	0.003
2004-2013	OPO4	75th Percentile	0.039	0.005	0.005	0.005	0.004	0.005	0.004	0.017	0.004
2014	OPO4	75th Percentile		0.007		0.004	0.004	0.003	0.002	0.007	0.004
2004-2013	OPO4	Count	5	67	10	61	74	56	41	104	77
2014	OPO4	Count	0	7	0	7	9	9	4	12	9
2004-2013	PH	Mean	7.0	6.8	7.1	6.6	6.9	6.6	6.4	7.3	6.8
2014	PH	Mean		6.8		6.4	7.0	6.9	6.7	7.5	6.2
2004-2013	PH	Variance	0.0	0.1	0.0	0.3	0.2	0.2	0.1	0.3	0.1
2014	PH	Variance		0.1		0.1	0.1	0.2	0.1	0.0	1.9
2004-2013	PH	25th Percentile	7.0	6.6	6.9	6.2	6.7	6.3	6.2	7.2	6.6
2014	PH	25th Percentile		6.6		6.3	6.7	6.7	6.4	7.5	6.5
2004-2013	PH	Median	7.1	6.8	7.1	6.6	6.9	6.5	6.4	7.3	6.8
2014	PH	Median		6.8		6.3	7.0	7.0	6.7	7.5	6.6
2004-2013	PH	75th Percentile	7.1	7.1	7.2	7.0	7.1	6.8	6.7	7.5	7.0
2014	PH	75th Percentile		7.1		6.4	7.3	7.2	6.9	7.6	6.7
2004-2013	PH	Count	10	89	13	91	91	85	79	108	93
2014	PH	Count	0	10	0	9	10	10	10	12	10
2004-2013	SPCOND	Mean	777	428	487	196	343	124	109	670	380
2014	SPCOND	Mean		386		153	330	106	98	890	555
2004-2013	SPCOND	Variance	76255	49992	34917	11044	38200	1305	695	48166	33985
2014	SPCOND	Variance		14463		9068	36267	504	1103	19038	23706
2004-2013	SPCOND	25th Percentile	666	241	444	126	175	99	90	500	233
2014	SPCOND	25th Percentile		344		99	178	94	75	775	417
2004-2013	SPCOND	Median	791	384	484	165	294	114	109	649	322
2014	SPCOND	Median		387		105	332	107	96	875	604
2004-2013	SPCOND	75th Percentile	914	593	497	226	473	145	125	825	500
2014	SPCOND	75th Percentile		452		196	380	112	121	982	646
2004-2013	SPCOND	Count	11	90	14	91	92	85	77	110	93
2014	SPCOND	Count	0	10	0	9	10	10	10	12	10

PERIOD	PARAMETER	STATISTIC	LOXA121	LOXA122	LOXA123	LOXA124	LOXA126	LOXA127	LOXA128	LOXA129	LOXA130
2004-2013	TEMP	Mean	22	23	24	23	24	25	25	25	24
2014	TEMP	Mean		23		23	23	23	24	26	23
2004-2013	TEMP	Variance	26	17	19	20	22	22	19	18	22
2014	TEMP	Variance		17		18	18	20	24	21	19
2004-2013	TEMP	25th Percentile	17	20	21	20	21	22	22	23	21
2014	TEMP	25th Percentile		21		20	20	20	22	23	20
2004-2013	TEMP	Median	24	24	26	24	24	25	25	25	24
2014	TEMP	Median		22		21	22	22	24	27	23
2004-2013	TEMP	75th Percentile	26	27	28	26	28	28	28	29	28
2014	TEMP	75th Percentile		27		28	27	27	28	30	26
2004-2013	TEMP	Count	11	90	14	92	93	87	79	110	94
2014	TEMP	Count	0	10	0	9	10	10	10	11	10
2004-2013	TN	Mean	2.1	1.2	1.5	1.0	1.2	1.2	1.2	1.7	1.2
2014	TN	Mean		1.1		0.7	1.1	1.2	1.0	1.7	1.3
2004-2013	TN	Variance	0.2	0.1	0.1	0.1	0.1	0.1	0.2	0.4	0.1
2014	TN	Variance		0.0		0.0	0.0	0.0	0.0	0.1	0.1
2004-2013	TN	25th Percentile	1.9	0.9	1.4	0.8	1.0	1.0	0.9	1.3	0.9
2014	TN	25th Percentile		1.0		0.6	1.0	1.1	0.9	1.5	1.1
2004-2013	TN	Median	2.0	1.1	1.4	0.9	1.2	1.2	1.1	1.5	1.0
2014	TN	Median		1.1		0.7	1.1	1.2	1.1	1.6	1.3
2004-2013	TN	75th Percentile	2.2	1.4	1.7	1.1	1.4	1.4	1.3	2.0	1.4
2014	TN	75th Percentile		1.2		0.8	1.2	1.4	1.2	1.8	1.4
2004-2013	TN	Count	4	67	9	65	77	59	40	110	80
2014	TN	Count	0	7	0	7	9	9	4	11	9

PERIOD	PARAMETER	STATISTIC	LOXA121	LOXA122	LOXA123	LOXA124	LOXA126	LOXA127	LOXA128	LOXA129	LOXA130
2004-2013	TP	Mean	0.083	0.012	0.015	0.018	0.010	0.007	0.007	0.057	0.015
2014	TP	Mean		0.013		0.015	0.010	0.006	0.006	0.031	0.011
2004-2013	TP	Variance	0.002	0.000	0.000	0.001	0.000	0.000	0.000	0.004	0.000
2014	TP	Variance		0.000		0.000	0.000	0.000	0.000	0.000	0.000
2004-2013	TP	25th Percentile	0.050	0.009	0.009	0.008	0.006	0.005	0.004	0.028	0.008
2014	TP	25th Percentile		0.011		0.013	0.006	0.005	0.005	0.024	0.009
2004-2013	TP	Median	0.068	0.011	0.013	0.013	0.009	0.007	0.005	0.041	0.011
2014	TP	Median		0.013		0.014	0.007	0.006	0.006	0.031	0.011
2004-2013	TP	75th Percentile	0.111	0.015	0.016	0.018	0.012	0.009	0.007	0.070	0.015
2014	TP	75th Percentile		0.015		0.017	0.008	0.006	0.006	0.039	0.014
2004-2013	TP	Count	10	90	14	97	92	87	78	109	98
2014	TP	Count	0	10	0	9	10	10	10	12	10
2004-2013	TSS	Mean	14.8	3.5	5.1	3.9	3.5	3.6	4.2	6.9	3.5
2014	TSS	Mean	0.0	5.0	0.0	5.0	5.0	5.0	5.0	5.0	5.0
2004-2013	TSS	Variance	316.2	4.7	44.1	7.3	2.4	2.2	12.4	20.4	2.4
2014	TSS	Variance	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2004-2013	TSS	25th Percentile	3.0	1.6	3.0	2.0	2.0	2.0	2.0	5.0	2.0
2014	TSS	25th Percentile	0.0	5.0	0.0	5.0	5.0	5.0	5.0	5.0	5.0
2004-2013	TSS	Median	3.0	3.0	3.0	3.0	3.0	4.0	5.0	5.0	3.0
2014	TSS	Median	0.0	5.0	0.0	5.0	5.0	5.0	5.0	5.0	5.0
2004-2013	TSS	75th Percentile	22.0	5.0	3.0	5.0	5.0	5.0	5.0	7.5	5.0
2014	TSS	75th Percentile	0.0	5.0	0.0	5.0	5.0	5.0	5.0	5.0	5.0
2004-2013	TSS	Count	5	81	10	89	88	79	70	109	91
2014	TSS	Count	0	10	0	9	10	10	10	11	10

PERIOD	PARAMETER	STATISTIC	LOXA131
2004-2013	ALK	Mean	51
2014	ALK	Mean	52
2004-2013	ALK	Variance	844
2014	ALK	Variance	348
2004-2013	ALK	25th Percentile	34
2014	ALK	25th Percentile	41
2004-2013	ALK	Median	45
2014	ALK	Median	45
2004-2013	ALK	75th Percentile	60
2014	ALK	75th Percentile	56
2004-2013	ALK	Count	75
2014	ALK	Count	9
2004-2013	CA	Mean	16
2014	CA	Mean	17
2004-2013	CA	Variance	52
2014	CA	Variance	21
2004-2013	CA	25th Percentile	11
2014	CA	25th Percentile	13
2004-2013	CA	Median	15
2014	CA	Median	17
2004-2013	CA	75th Percentile	19
2014	CA	75th Percentile	18
2004-2013	CA	Count	75
2014	CA	Count	9
2004-2013	CL	Mean	33
2014	CL	Mean	41
2004-2013	CL	Variance	311
2014	CL	Variance	199
2004-2013	CL	25th Percentile	20
2014	CL	25th Percentile	29
2004-2013	CL	Median	30
2014	CL	Median	40
2004-2013	CL	75th Percentile	43
2014	CL	75th Percentile	49
2004-2013	CL	Count	91
2014	CL	Count	10

PERIOD	PARAMETER	STATISTIC	LOXA131
2004-2013	DCS	Mean	0.39
2014	DCS	Mean	0.41
2004-2013	DCS	Variance	0.02
2014	DCS	Variance	0.01
2004-2013	DCS	25th Percentile	0.29
2014	DCS	25th Percentile	0.35
2004-2013	DCS	Median	0.36
2014	DCS	Median	0.39
2004-2013	DCS	75th Percentile	0.45
2014	DCS	75th Percentile	0.51
2004-2013	DCS	Count	72
2014	DCS	Count	10
2004-2013	SIO2	Mean	7
2014	SIO2	Mean	8
2004-2013	SIO2	Variance	24
2014	SIO2	Variance	30
2004-2013	SIO2	25th Percentile	4
2014	SIO2	25th Percentile	3
2004-2013	SIO2	Median	7
2014	SIO2	Median	8
2004-2013	SIO2	75th Percentile	9
2014	SIO2	75th Percentile	10
2004-2013	SIO2	Count	75
2014	SIO2	Count	9

PERIOD	PARAMETER	STATISTIC	LOXA131
2004-2013	SO4	Mean	1.8
2014	SO4	Mean	1.1
2004-2013	SO4	Variance	12.2
2014	SO4	Variance	0.5
2004-2013	SO4	25th Percentile	0.5
2014	SO4	25th Percentile	0.6
2004-2013	SO4	Median	0.7
2014	SO4	Median	1.0
2004-2013	SO4	75th Percentile	1.5
2014	SO4	75th Percentile	1.4
2004-2013	SO4	Count	91
2014	SO4	Count	10
2004-2013	TDEPTH	Mean	0.30
2014	TDEPTH	Mean	0.34
2004-2013	TDEPTH	Variance	0.01
2014	TDEPTH	Variance	0.02
2004-2013	TDEPTH	25th Percentile	0.21
2014	TDEPTH	25th Percentile	0.26
2004-2013	TDEPTH	Median	0.28
2014	TDEPTH	Median	0.31
2004-2013	TDEPTH	75th Percentile	0.35
2014	TDEPTH	75th Percentile	0.43
2004-2013	TDEPTH	Count	81
2014	TDEPTH	Count	10
2004-2013	TDOC	Mean	52
2014	TDOC	Mean	47
2004-2013	TDOC	Variance	962
2014	TDOC	Variance	169
2004-2013	TDOC	25th Percentile	34
2014	TDOC	25th Percentile	35
2004-2013	TDOC	Median	44
2014	TDOC	Median	47
2004-2013	TDOC	75th Percentile	61
2014	TDOC	75th Percentile	58
2004-2013	TDOC	Count	64
2014	TDOC	Count	11

PERIOD	PARAMETER	STATISTIC	LOXA131
2004-2013	TDS	Mean	159
2014	TDS	Mean	178
2004-2013	TDS	Variance	4079
2014	TDS	Variance	2717
2004-2013	TDS	25th Percentile	115
2014	TDS	25th Percentile	123
2004-2013	TDS	Median	143
2014	TDS	Median	191
2004-2013	TDS	75th Percentile	191
2014	TDS	75th Percentile	202
2004-2013	TDS	Count	75
2014	TDS	Count	9
2004-2013	TOC	Mean	22
2014	TOC	Mean	22
2004-2013	TOC	Variance	36
2014	TOC	Variance	44
2004-2013	TOC	25th Percentile	18
2014	TOC	25th Percentile	18
2004-2013	TOC	Median	22
2014	TOC	Median	20
2004-2013	TOC	75th Percentile	26
2014	TOC	75th Percentile	27
2004-2013	TOC	Count	75
2014	TOC	Count	9
2004-2013	DO	Mean	4.7
2014	DO	Mean	4.1
2004-2013	DO	Variance	5.2
2014	DO	Variance	7.1
2004-2013	DO	25th Percentile	3.2
2014	DO	25th Percentile	2.4
2004-2013	DO	Median	4.1
2014	DO	Median	3.1
2004-2013	DO	75th Percentile	6.0
2014	DO	75th Percentile	5.6
2004-2013	DO	Count	86
2014	DO	Count	10

PERIOD	PARAMETER	STATISTIC	LOXA131
2004-2013	OPO4	Mean	0.006
2014	OPO4	Mean	0.003
2004-2013	OPO4	Variance	0.000
2014	OPO4	Variance	0.000
2004-2013	OPO4	25th Percentile	0.003
2014	OPO4	25th Percentile	0.002
2004-2013	OPO4	Median	0.003
2014	OPO4	Median	0.003
2004-2013	OPO4	75th Percentile	0.004
2014	OPO4	75th Percentile	0.003
2004-2013	OPO4	Count	72
2014	OPO4	Count	9
2004-2013	PH	Mean	6.8
2014	PH	Mean	6.7
2004-2013	PH	Variance	0.1
2014	PH	Variance	0.2
2004-2013	PH	25th Percentile	6.6
2014	PH	25th Percentile	6.5
2004-2013	PH	Median	6.8
2014	PH	Median	6.5
2004-2013	PH	75th Percentile	7.0
2014	PH	75th Percentile	6.7
2004-2013	PH	Count	89
2014	PH	Count	10
2004-2013	SPCOND	Mean	205
2014	SPCOND	Mean	237
2004-2013	SPCOND	Variance	9911
2014	SPCOND	Variance	4235
2004-2013	SPCOND	25th Percentile	126
2014	SPCOND	25th Percentile	181
2004-2013	SPCOND	Median	186
2014	SPCOND	Median	232
2004-2013	SPCOND	75th Percentile	254
2014	SPCOND	75th Percentile	268
2004-2013	SPCOND	Count	89
2014	SPCOND	Count	10

PERIOD	PARAMETER	STATISTIC	LOXA131
2004-2013	TEMP	Mean	24
2014	TEMP	Mean	24
2004-2013	TEMP	Variance	24
2014	TEMP	Variance	26
2004-2013	TEMP	25th Percentile	22
2014	TEMP	25th Percentile	20
2004-2013	TEMP	Median	25
2014	TEMP	Median	23
2004-2013	TEMP	75th Percentile	28
2014	TEMP	75th Percentile	28
2004-2013	TEMP	Count	90
2014	TEMP	Count	10
2004-2013	TN	Mean	1.3
2014	TN	Mean	1.2
2004-2013	TN	Variance	0.1
2014	TN	Variance	0.3
2004-2013	TN	25th Percentile	1.0
2014	TN	25th Percentile	1.2
2004-2013	TN	Median	1.3
2014	TN	Median	1.2
2004-2013	TN	75th Percentile	1.6
2014	TN	75th Percentile	1.2
2004-2013	TN	Count	75
2014	TN	Count	9

PERIOD	PARAMETER	STATISTIC	LOXA131
2004-2013	TP	Mean	0.007
2014	TP	Mean	0.006
2004-2013	TP	Variance	0.000
2014	TP	Variance	0.000
2004-2013	TP	25th Percentile	0.005
2014	TP	25th Percentile	0.003
2004-2013	TP	Median	0.007
2014	TP	Median	0.006
2004-2013	TP	75th Percentile	0.009
2014	TP	75th Percentile	0.008
2004-2013	TP	Count	89
2014	TP	Count	10
2004-2013	TSS	Mean	3.5
2014	TSS	Mean	5.5
2004-2013	TSS	Variance	3.5
2014	TSS	Variance	2.5
2004-2013	TSS	25th Percentile	2.0
2014	TSS	25th Percentile	5.0
2004-2013	TSS	Median	3.0
2014	TSS	Median	5.0
2004-2013	TSS	75th Percentile	5.0
2014	TSS	75th Percentile	5.0
2004-2013	TSS	Count	87
2014	TSS	Count	10

PERIOD	PARAMETER	STATISTIC	LOXA132	LOXA133	LOXA134	LOXA135	LOXA136	LOXA137	LOXA138	LOXA139	LOXA140	LOXA141
2004-2013	ALK	Mean	161	112	89	163	124	85	57	20	73	70
2014	ALK	Mean	200	154	128	209	186	123	73	20	62	84
2004-2013	ALK	Variance	1745	1512	1530	1802	2637	1880	1158	136	1278	1120
2014	ALK	Variance	1343	302	1116	1207	1234	1494	764	11	356	472
2004-2013	ALK	25th Percentile	130	82	61	131	86	51	33	14	49	42
2014	ALK	25th Percentile	173	150	118	187	176	106	55	19	53	65
2004-2013	ALK	Median	151	110	83	150	115	73	41	17	60	59
2014	ALK	Median	200	158	137	199	188	129	67	21	57	82
2004-2013	ALK	75th Percentile	190	126	100	188	168	110	73	23	93	96
2014	ALK	75th Percentile	227	168	155	225	210	157	85	23	66	89
2004-2013	ALK	Count	108	25	59	111	46	65	42	27	35	69
2014	ALK	Count	11	5	9	11	7	8	6	4	5	10
2004-2013	CA	Mean	55	37	30	58	41	30	19	9	26	25
2014	CA	Mean	72	54	44	75	62	43	26	10	21	27
2004-2013	CA	Variance	243	262	178	240	316	211	120	20	188	173
2014	CA	Variance	243	17	111	247	129	180	95	0	33	59
2004-2013	CA	25th Percentile	45	26	19	48	27	17	11	6	16	15
2014	CA	25th Percentile	62	53	41	67	58	37	19	10	18	22
2004-2013	CA	Median	53	38	27	55	40	25	15	7	20	24
2014	CA	Median	68	54	46	69	63	47	24	10	19	25
2004-2013	CA	75th Percentile	63	44	38	67	56	41	22	9	36	35
2014	CA	75th Percentile	75	55	48	80	67	49	28	10	22	31
2004-2013	CA	Count	106	26	59	112	46	64	42	27	34	69
2014	CA	Count	12	5	9	12	7	8	6	4	5	10
2004-2013	CL	Mean	104	58	50	110	65	48	32	20	40	38
2014	CL	Mean	141	95	93	151	114	92	52	24	44	58
2004-2013	CL	Variance	2038	927	836	1992	1259	854	326	89	456	559
2014	CL	Variance	869	508	580	925	840	808	546	13	403	230
2004-2013	CL	25th Percentile	70	31	26	82	34	23	18	14	23	21
2014	CL	25th Percentile	120	87	90	128	97	88	34	22	27	50
2004-2013	CL	Median	99	51	40	110	58	40	26	19	35	27
2014	CL	Median	137	103	97	143	119	102	45	24	39	53
2004-2013	CL	75th Percentile	124	91	74	130	91	73	45	26	54	56
2014	CL	75th Percentile	162	106	107	172	127	108	67	28	58	65
2004-2013	CL	Count	110	62	92	112	79	94	86	72	78	72
2014	CL	Count	11	9	9	11	10	9	9	8	9	10

PERIOD	PARAMETER	STATISTIC	LOXA132	LOXA133	LOXA134	LOXA135	LOXA136	LOXA137	LOXA138	LOXA139	LOXA140	LOXA141
2004-2013	DCS	Mean	1.00	0.38	0.41	1.00	0.49	0.37	0.32	0.28	0.31	0.89
2014	DCS	Mean	1.00	0.45	0.47	1.00	0.60	0.43	0.36	0.33	0.34	0.90
2004-2013	DCS	Variance		0.02	0.02		0.03	0.02	0.01	0.01	0.01	0.13
2014	DCS	Variance		0.02	0.01		0.03	0.01	0.01	0.01	0.02	0.07
2004-2013	DCS	25th Percentile	1.00	0.26	0.32	1.00	0.36	0.28	0.24	0.21	0.23	0.59
2014	DCS	25th Percentile	1.00	0.38	0.39	1.00	0.49	0.35	0.28	0.27	0.24	0.82
2004-2013	DCS	Median	1.00	0.36	0.38	1.00	0.48	0.35	0.28	0.26	0.26	0.90
2014	DCS	Median	1.00	0.45	0.41	1.00	0.62	0.43	0.31	0.28	0.29	1.00
2004-2013	DCS	75th Percentile	1.00	0.47	0.48	1.00	0.60	0.41	0.38	0.32	0.38	1.30
2014	DCS	75th Percentile	1.00	0.53	0.56	1.00	0.72	0.47	0.45	0.41	0.42	1.00
2004-2013	DCS	Count	110	51	70	112	67	80	69	59	63	72
2014	DCS	Count	12	9	9	12	10	9	9	8	9	11
2004-2013	SIO2	Mean	10	11	9	9	11	9	9	6	11	9
2014	SIO2	Mean	11	14	10	11	13	11	9	4	7	12
2004-2013	SIO2	Variance	26	26	24	23	35	41	44	21	46	21
2014	SIO2	Variance	45	5	21	52	35	33	20	5	12	7
2004-2013	SIO2	25th Percentile	6	8	6	6	8	4	4	3	5	5
2014	SIO2	25th Percentile	8	13	6	6	10	7	8	2	5	10
2004-2013	SIO2	Median	9	11	8	9	10	9	7	5	11	7
2014	SIO2	Median	10	14	12	10	14	12	10	3	5	12
2004-2013	SIO2	75th Percentile	12	15	13	12	16	14	12	9	15	13
2014	SIO2	75th Percentile	14	15	12	13	17	13	12	5	8	13
2004-2013	SIO2	Count	109	26	59	112	47	66	43	28	35	69
2014	SIO2	Count	11	5	9	11	7	8	6	4	5	10

PERIOD	PARAMETER	STATISTIC	LOXA132	LOXA133	LOXA134	LOXA135	LOXA136	LOXA137	LOXA138	LOXA139	LOXA140	LOXA141
2004-2013	SO4	Mean	29.3	7.3	7.1	31.9	10.1	6.4	2.6	0.5	3.5	6.0
2014	SO4	Mean	53.0	9.2	11.9	58.1	20.8	12.6	3.7	0.7	2.4	10.7
2004-2013	SO4	Variance	380.0	110.0	114.8	406.9	219.8	105.5	35.6	0.4	44.7	71.0
2014	SO4	Variance	638.6	81.9	103.4	676.7	313.5	104.5	43.7	0.1	6.8	101.0
2004-2013	SO4	25th Percentile	15.0	1.2	1.1	18.0	1.2	0.9	0.6	0.1	0.8	0.9
2014	SO4	25th Percentile	37.2	1.9	2.8	41.7	4.8	4.7	1.1	0.6	1.3	4.7
2004-2013	SO4	Median	25.0	2.2	2.4	27.3	3.1	1.5	0.8	0.4	1.1	2.3
2014	SO4	Median	47.4	6.8	10.3	48.4	18.3	11.7	1.3	0.8	1.6	5.5
2004-2013	SO4	75th Percentile	39.9	8.1	7.3	41.6	11.8	6.4	1.5	0.6	2.2	6.4
2014	SO4	75th Percentile	66.5	12.9	15.3	65.0	32.8	16.7	1.7	0.8	2.0	18.0
2004-2013	SO4	Count	110	62	92	112	78	94	86	71	78	72
2014	SO4	Count	11	9	9	11	10	9	9	8	9	10
2004-2013	TDEPTH	Mean	1.11	0.21	0.27	1.12	0.27	0.27	0.22	0.19	0.22	0.49
2014	TDEPTH	Mean	NA	0.25	0.31	NA	0.32	0.30	0.28	0.25	0.25	0.72
2004-2013	TDEPTH	Variance	0.18	0.02	0.01	0.15	0.02	0.01	0.01	0.01	0.01	0.06
2014	TDEPTH	Variance	NA	0.02	0.02	NA	0.03	0.02	0.01	0.01	0.01	0.19
2004-2013	TDEPTH	25th Percentile	1.30	0.13	0.18	1.30	0.16	0.18	0.14	0.13	0.14	0.32
2014	TDEPTH	25th Percentile	NA	0.19	0.24	NA	0.19	0.21	0.18	0.17	0.17	0.38
2004-2013	TDEPTH	Median	1.30	0.18	0.25	1.30	0.22	0.24	0.19	0.17	0.18	0.39
2014	TDEPTH	Median	NA	0.20	0.25	NA	0.27	0.25	0.24	0.19	0.21	0.70
2004-2013	TDEPTH	75th Percentile	1.30	0.26	0.32	1.30	0.35	0.32	0.26	0.23	0.27	0.63
2014	TDEPTH	75th Percentile	NA	0.23	0.35	NA	0.35	0.37	0.37	0.34	0.31	1.04
2004-2013	TDEPTH	Count	11	57	80	10	73	85	81	71	73	52
2014	TDEPTH	Count	0	9	9	0	10	9	9	8	9	4
2004-2013	TDOC	Mean	160	112	87	161	123	82	57	20	71	73
2014	TDOC	Mean	161	115	101	177	134	102	56	19	89	52
2004-2013	TDOC	Variance	1765	1582	1543	1774	2570	1775	1251	152	1243	1171
2014	TDOC	Variance	1724	1480	1461	1969	3833	2594	880	15	1686	526
2004-2013	TDOC	25th Percentile	130	81	59	130	86	51	33	13	45	45
2014	TDOC	25th Percentile	140	101	77	145	88	63	32	17	64	35
2004-2013	TDOC	Median	151	110	81	150	110	72	41	16	58	69
2014	TDOC	Median	149	115	86	176	153	104	52	18	76	54
2004-2013	TDOC	75th Percentile	190	126	100	186	160	108	80	23	93	98
2014	TDOC	75th Percentile	187	128	135	209	174	145	66	21	101	59
2004-2013	TDOC	Count	97	23	51	99	41	57	34	24	31	58
2014	TDOC	Count	11	2	8	12	5	8	8	3	4	11

PERIOD	PARAMETER	STATISTIC	LOXA132	LOXA133	LOXA134	LOXA135	LOXA136	LOXA137	LOXA138	LOXA139	LOXA140	LOXA141
2004-2013	TDS	Mean	434	291	249	451	332	243	177	112	227	187
2014	TDS	Mean	583	418	358	611	489	357	250	145	209	253
2004-2013	TDS	Variance	18768	14094	11504	17350	19133	12894	7608	1492	8319	9140
2014	TDS	Variance	13239	1229	6066	11016	6511	8924	4729	99	2517	4029
2004-2013	TDS	25th Percentile	328	189	165	350	210	154	116	89	157	113
2014	TDS	25th Percentile	503	418	326	538	468	327	207	142	177	218
2004-2013	TDS	Median	420	290	230	440	307	220	151	101	218	155
2014	TDS	Median	583	429	385	588	505	390	233	149	196	229
2004-2013	TDS	75th Percentile	510	371	334	522	439	341	225	130	277	250
2014	TDS	75th Percentile	622	435	421	679	540	417	286	152	222	290
2004-2013	TDS	Count	109	25	59	112	46	64	42	27	35	69
2014	TDS	Count	11	5	9	11	7	8	6	4	5	10
2004-2013	TOC	Mean	26	25	24	26	29	25	23	24	28	20
2014	TOC	Mean	25	26	24	26	27	25	26	33	23	20
2004-2013	TOC	Variance	46	56	45	54	67	35	48	55	54	22
2014	TOC	Variance	26	5	5	35	10	15	26	17	8	5
2004-2013	TOC	25th Percentile	21	18	18	21	22	21	18	19	23	17
2014	TOC	25th Percentile	23	25	22	23	24	22	22	32	22	18
2004-2013	TOC	Median	26	26	24	26	29	25	22	23	27	20
2014	TOC	Median	25	25	24	24	25	25	26	34	23	19
2004-2013	TOC	75th Percentile	30	30	29	30	33	29	26	26	32	24
2014	TOC	75th Percentile	27	26	25	28	28	27	27	35	24	21
2004-2013	TOC	Count	108	25	59	112	46	65	42	27	35	68
2014	TOC	Count	11	5	9	11	7	8	6	4	5	10
2004-2013	DO	Mean	3.9	2.2	3.5	4.3	2.0	3.1	5.0	4.7	4.5	2.4
2014	DO	Mean	4.4	1.2	2.0	4.4	1.5	4.0	5.7	4.5	4.5	1.2
2004-2013	DO	Variance	3.9	1.4	3.9	4.2	2.4	4.2	7.2	5.9	4.9	2.5
2014	DO	Variance	3.7	0.9	2.0	3.0	2.1	1.6	3.1	3.0	5.1	0.6
2004-2013	DO	25th Percentile	2.4	1.2	1.9	2.8	0.9	1.7	3.2	2.9	3.0	1.0
2014	DO	25th Percentile	3.1	0.8	0.7	3.8	0.6	3.1	4.8	3.7	2.9	0.5
2004-2013	DO	Median	3.9	2.0	3.2	4.2	1.6	2.7	4.3	4.3	4.3	2.0
2014	DO	Median	3.7	1.0	1.7	3.9	0.7	3.6	5.7	4.8	3.4	1.1
2004-2013	DO	75th Percentile	5.3	3.0	4.7	5.6	2.6	4.2	6.0	6.2	5.8	3.6
2014	DO	75th Percentile	4.9	1.4	2.7	4.7	2.4	4.7	6.2	5.8	6.1	1.8
2004-2013	DO	Count	106	59	87	109	77	91	83	71	75	71
2014	DO	Count	11	9	9	11	10	9	9	8	9	10

PERIOD	PARAMETER	STATISTIC	LOXA132	LOXA133	LOXA134	LOXA135	LOXA136	LOXA137	LOXA138	LOXA139	LOXA140	LOXA141
2004-2013	OPO4	Mean	0.023	0.022	0.010	0.021	0.011	0.005	0.005	0.004	0.006	0.005
2014	OPO4	Mean	0.006	0.004	0.003	0.007	0.004	0.003	0.003	0.002	0.003	0.004
2004-2013	OPO4	Variance	0.003	0.003	0.001	0.003	0.001	0.000	0.000	0.000	0.000	0.000
2014	OPO4	Variance	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
2004-2013	OPO4	25th Percentile	0.004	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.002
2014	OPO4	25th Percentile	0.003	0.003	0.002	0.003	0.004	0.002	0.002	0.002	0.002	0.003
2004-2013	OPO4	Median	0.007	0.004	0.004	0.006	0.004	0.003	0.003	0.003	0.004	0.003
2014	OPO4	Median	0.005	0.004	0.003	0.007	0.004	0.003	0.003	0.002	0.002	0.003
2004-2013	OPO4	75th Percentile	0.023	0.010	0.006	0.013	0.005	0.004	0.004	0.004	0.006	0.004
2014	OPO4	75th Percentile	0.009	0.005	0.004	0.011	0.005	0.004	0.003	0.002	0.004	0.004
2004-2013	OPO4	Count	103	25	58	104	45	61	40	26	34	69
2014	OPO4	Count	12	5	9	12	7	8	6	4	5	10
2004-2013	PH	Mean	7.4	6.8	6.9	7.5	6.8	6.8	7.0	6.7	6.9	6.8
2014	PH	Mean	7.5	6.7	6.9	7.5	7.0	7.0	6.9	6.9	6.9	6.9
2004-2013	PH	Variance	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.3	0.2	0.2
2014	PH	Variance	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.2	0.2	0.1
2004-2013	PH	25th Percentile	7.2	6.5	6.7	7.3	6.6	6.6	6.6	6.4	6.7	6.4
2014	PH	25th Percentile	7.4	6.7	6.8	7.4	6.8	6.9	6.8	6.6	6.5	6.8
2004-2013	PH	Median	7.4	6.8	6.9	7.5	6.9	6.8	6.9	6.7	6.8	6.8
2014	PH	Median	7.6	6.7	6.8	7.6	6.9	6.9	7.0	7.0	7.0	6.9
2004-2013	PH	75th Percentile	7.6	7.0	7.1	7.6	7.1	7.0	7.1	7.1	7.1	7.0
2014	PH	75th Percentile	7.7	6.9	6.9	7.6	7.0	7.2	7.1	7.1	7.1	7.0
2004-2013	PH	Count	108	62	90	111	79	94	86	73	78	71
2014	PH	Count	12	9	9	12	10	9	9	8	9	11
2004-2013	SPCOND	Mean	704	409	344	732	443	323	232	118	252	275
2014	SPCOND	Mean	935	590	566	1001	710	559	311	141	268	378
2004-2013	SPCOND	Variance	48247	29925	27821	46198	44325	30878	86924	1999	16115	23535
2014	SPCOND	Variance	22023	16000	21168	28461	31028	27120	16944	253	9509	9613
2004-2013	SPCOND	25th Percentile	539	277	205	557	267	172	127	87	158	156
2014	SPCOND	25th Percentile	813	547	539	887	591	552	216	129	192	317
2004-2013	SPCOND	Median	673	405	312	736	407	276	177	109	218	233
2014	SPCOND	Median	970	602	583	999	744	600	271	140	237	362
2004-2013	SPCOND	75th Percentile	822	551	465	857	605	447	251	142	313	386
2014	SPCOND	75th Percentile	1021	698	683	1100	830	674	351	152	323	412
2004-2013	SPCOND	Count	110	63	90	111	79	93	85	72	77	71
2014	SPCOND	Count	12	9	9	12	10	9	9	8	9	11

PERIOD	PARAMETER	STATISTIC	LOXA132	LOXA133	LOXA134	LOXA135	LOXA136	LOXA137	LOXA138	LOXA139	LOXA140	LOXA141
2004-2013	TEMP	Mean	25	23	24	25	23	24	24	25	24	23
2014	TEMP	Mean	26	23	24	26	24	24	24	24	24	23
2004-2013	TEMP	Variance	18	19	23	17	20	22	25	24	22	16
2014	TEMP	Variance	23	18	20	23	18	21	23	27	34	16
2004-2013	TEMP	25th Percentile	23	21	22	22	20	21	21	22	21	21
2014	TEMP	25th Percentile	22	20	21	23	22	22	22	21	20	21
2004-2013	TEMP	Median	26	23	25	26	23	25	26	26	25	23
2014	TEMP	Median	27	21	23	26	24	23	25	24	22	22
2004-2013	TEMP	75th Percentile	29	27	28	29	27	28	28	28	28	27
2014	TEMP	75th Percentile	30	26	26	30	28	27	27	27	29	27
2004-2013	TEMP	Count	110	63	92	111	78	93	85	73	77	71
2014	TEMP	Count	11	9	9	11	10	9	9	8	9	10
2004-2013	TN	Mean	1.8	1.6	1.3	1.8	1.6	1.4	1.3	1.3	1.4	1.2
2014	TN	Mean	1.6	1.5	1.4	1.7	1.7	1.4	1.8	2.0	1.2	1.2
2004-2013	TN	Variance	0.5	0.5	0.2	0.4	0.3	0.1	0.2	0.2	0.2	0.1
2014	TN	Variance	0.1	0.1	0.0	0.1	0.2	0.1	0.7	0.2	0.0	0.0
2004-2013	TN	25th Percentile	1.3	1.1	1.0	1.3	1.2	1.1	1.1	1.1	1.0	0.9
2014	TN	25th Percentile	1.5	1.5	1.3	1.5	1.4	1.3	1.2	1.9	1.1	1.1
2004-2013	TN	Median	1.6	1.3	1.3	1.7	1.5	1.3	1.3	1.3	1.3	1.1
2014	TN	Median	1.6	1.6	1.4	1.7	1.5	1.5	1.6	2.1	1.1	1.1
2004-2013	TN	75th Percentile	2.1	1.7	1.5	2.1	1.8	1.6	1.5	1.4	1.6	1.3
2014	TN	75th Percentile	1.8	1.6	1.5	2.0	1.7	1.6	2.0	2.2	1.3	1.2
2004-2013	TN	Count	108	25	59	111	46	65	42	27	35	69
2014	TN	Count	11	5	9	11	7	8	6	4	5	10

PERIOD	PARAMETER	STATISTIC	LOXA132	LOXA133	LOXA134	LOXA135	LOXA136	LOXA137	LOXA138	LOXA139	LOXA140	LOXA141
2004-2013	TP	Mean	0.057	0.043	0.016	0.056	0.028	0.013	0.009	0.008	0.012	0.012
2014	TP	Mean	0.029	0.019	0.010	0.029	0.020	0.010	0.006	0.007	0.012	0.010
2004-2013	TP	Variance	0.004	0.003	0.001	0.005	0.001	0.000	0.000	0.000	0.000	0.000
2014	TP	Variance	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
2004-2013	TP	25th Percentile	0.029	0.017	0.008	0.027	0.014	0.008	0.006	0.005	0.008	0.008
2014	TP	25th Percentile	0.024	0.013	0.009	0.024	0.014	0.008	0.003	0.006	0.009	0.007
2004-2013	TP	Median	0.041	0.026	0.011	0.040	0.018	0.011	0.008	0.007	0.010	0.011
2014	TP	Median	0.027	0.020	0.010	0.027	0.017	0.011	0.007	0.007	0.011	0.010
2004-2013	TP	75th Percentile	0.065	0.037	0.016	0.064	0.028	0.015	0.009	0.009	0.013	0.014
2014	TP	75th Percentile	0.032	0.023	0.012	0.034	0.027	0.013	0.008	0.008	0.013	0.011
2004-2013	TP	Count	108	62	91	112	79	100	86	72	80	72
2014	TP	Count	12	9	9	12	10	9	9	8	9	11
2004-2013	TSS	Mean	7.3	4.9	3.9	6.2	4.2	3.5	3.8	3.9	3.7	4.6
2014	TSS	Mean	5.0	5.0	5.0	5.0	6.2	5.0	5.0	5.0	5.0	5.0
2004-2013	TSS	Variance	50.3	6.3	3.4	15.2	6.7	2.3	3.9	2.2	2.4	58.3
2014	TSS	Variance	0.0	0.0	0.0	0.0	13.2	0.0	0.0	0.0	0.0	0.0
2004-2013	TSS	25th Percentile	4.5	3.0	2.0	4.5	2.0	2.0	2.0	2.6	2.0	2.0
2014	TSS	25th Percentile	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
2004-2013	TSS	Median	5.0	5.0	4.5	5.0	5.0	3.0	4.3	5.0	4.0	5.0
2014	TSS	Median	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
2004-2013	TSS	75th Percentile	6.7	5.0	5.0	7.4	5.0	5.0	5.0	5.0	5.0	5.0
2014	TSS	75th Percentile	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
2004-2013	TSS	Count	109	56	80	111	69	88	76	62	68	71
2014	TSS	Count	11	9	9	11	10	9	9	8	9	10

PERIOD	PARAMETER	STATISTIC	LOX10	LOX11	LOX12	LOX13	LOX14	LOX15	LOX16	LOX3	LOX4	LOX5
2004-2013	ALK	Mean	39	12	42	16	44	80	41	13	79	9
2014	ALK	Mean	21	17	38	18	47	87	35	9	92	7
2004-2013	ALK	Variance	212	15	265	22	469	1312	441	65	805	4
2014	ALK	Variance	32	13	37	12	850	627	87	1	873	1
2004-2013	ALK	25th Percentile	29	10	30	13	30	50	28	9	59	8
2014	ALK	25th Percentile	17	16	35	17	27	66	31	9	73	7
2004-2013	ALK	Median	34	12	38	15	38	77	34	10	71	8
2014	ALK	Median	20	18	36	18	32	87	34	10	86	7
2004-2013	ALK	75th Percentile	48	14	52	19	50	104	45	14	97	10
2014	ALK	75th Percentile	24	19	41	21	63	109	35	10	111	8
2004-2013	ALK	Count	42	87	113	87	107	108	104	16	69	23
2014	ALK	Count	6	8	11	9	11	11	8	3	9	3
2004-2013	CA	Mean	11	7	12	7	16	24	13	6	25	4
2014	CA	Mean	7	8	12	8	16	28	11	7	31	5
2004-2013	CA	Variance	18	4	19	4	65	122	43	7	75	1
2014	CA	Variance	2	3	5	2	104	81	14	0	71	0
2004-2013	CA	25th Percentile	8	5	9	6	11	14	9	4	19	4
2014	CA	25th Percentile	6	7	10	7	9	20	10	6	26	4
2004-2013	CA	Median	10	6	11	8	13	23	11	5	23	4
2014	CA	Median	6	8	11	8	11	27	10	7	30	4
2004-2013	CA	75th Percentile	15	8	15	9	17	33	15	6	31	5
2014	CA	75th Percentile	7	9	12	9	22	36	11	7	37	5
2004-2013	CA	Count	42	87	113	87	107	107	103	16	70	22
2014	CA	Count	6	8	11	9	11	11	8	3	9	3
2004-2013	CL	Mean	23	21	26	20	35	48	30	22	48	20
2014	CL	Mean	16	20	26	18	41	64	24	26	72	26
2004-2013	CL	Variance	172	60	121	41	494	632	367	66	507	42
2014	CL	Variance	51	53	34	31	1007	314	104	42	613	58
2004-2013	CL	25th Percentile	14	16	18	16	21	27	18	17	29	15
2014	CL	25th Percentile	10	14	21	14	14	51	16	22	57	21
2004-2013	CL	Median	19	19	23	20	27	43	25	21	43	20
2014	CL	Median	13	20	27	18	22	74	21	25	64	23
2004-2013	CL	75th Percentile	28	25	31	24	36	69	33	26	68	25
2014	CL	75th Percentile	23	22	28	20	68	78	28	31	96	32
2004-2013	CL	Count	87	104	113	99	109	109	107	58	96	68
2014	CL	Count	8	11	11	11	11	11	11	6	10	8

PERIOD	PARAMETER	STATISTIC	LOX10	LOX11	LOX12	LOX13	LOX14	LOX15	LOX16	LOX3	LOX4	LOX5
2004-2013	DCS	Mean	0.32	0.51	0.82	0.48	0.68	0.92	0.76	0.24	0.39	0.28
2014	DCS	Mean	0.32	0.51	0.88	0.57	0.79	1.05	0.69	0.23	0.38	0.29
2004-2013	DCS	Variance	0.01	0.02	0.03	0.03	0.03	0.05	0.04	0.01	0.01	0.01
2014	DCS	Variance	0.03	0.02	0.03	0.03	0.04	0.07	0.06	0.03	0.04	0.03
2004-2013	DCS	25th Percentile	0.23	0.42	0.73	0.38	0.56	0.80	0.65	0.20	0.29	0.23
2014	DCS	25th Percentile	0.19	0.43	0.77	0.52	0.69	0.90	0.46	0.12	0.30	0.19
2004-2013	DCS	Median	0.30	0.52	0.85	0.48	0.70	0.96	0.79	0.23	0.38	0.27
2014	DCS	Median	0.29	0.49	0.80	0.58	0.78	1.12	0.78	0.19	0.35	0.26
2004-2013	DCS	75th Percentile	0.38	0.59	0.94	0.61	0.80	1.04	0.92	0.26	0.46	0.32
2014	DCS	75th Percentile	0.43	0.56	0.99	0.60	0.90	1.19	0.87	0.31	0.52	0.40
2004-2013	DCS	Count	69	78	78	76	78	78	77	59	68	63
2014	DCS	Count	12	11	11	11	11	11	11	12	12	12
2004-2013	SIO2	Mean	6	3	6	4	5	7	5	4	9	3
2014	SIO2	Mean	3	5	7	5	6	12	4	2	8	4
2004-2013	SIO2	Variance	15	3	8	4	15	27	11	6	22	6
2014	SIO2	Variance	3	1	2	1	12	18	1	1	27	0
2004-2013	SIO2	25th Percentile	3	2	4	2	2	3	2	3	5	1
2014	SIO2	25th Percentile	2	4	7	4	3	9	4	2	4	4
2004-2013	SIO2	Median	6	3	5	3	3	6	4	4	8	3
2014	SIO2	Median	4	5	7	5	4	11	4	3	5	4
2004-2013	SIO2	75th Percentile	9	4	8	5	7	10	6	5	11	5
2014	SIO2	75th Percentile	4	6	8	6	7	16	5	3	13	4
2004-2013	SIO2	Count	42	86	112	87	106	107	103	16	70	23
2014	SIO2	Count	6	8	11	9	11	11	8	3	9	3

PERIOD	PARAMETER	STATISTIC	LOX10	LOX11	LOX12	LOX13	LOX14	LOX15	LOX16	LOX3	LOX4	LOX5
2004-2013	SO4	Mean	1.1	0.1	0.9	0.1	3.5	11.2	2.4	0.3	3.6	0.1
2014	SO4	Mean	0.5	0.1	0.5	0.1	2.9	17.8	1.1	0.1	4.5	0.1
2004-2013	SO4	Variance	1.7	0.0	1.3	0.0	58.3	105.9	27.1	1.0	39.1	0.0
2014	SO4	Variance	0.1	0.0	0.4	0.0	18.1	130.3	5.8		37.2	0.0
2004-2013	SO4	25th Percentile	0.4	0.1	0.2	0.1	0.4	2.6	0.2	0.1	0.8	0.1
2014	SO4	25th Percentile	0.3	0.1	0.2	0.1	0.7	8.1	0.2	0.1	1.2	0.1
2004-2013	SO4	Median	0.8	0.1	0.5	0.1	1.1	7.3	0.7	0.1	1.4	0.1
2014	SO4	Median	0.4	0.1	0.3	0.1	1.1	18.7	0.3	0.1	1.7	0.1
2004-2013	SO4	75th Percentile	1.6	0.1	1.1	0.1	2.5	17.4	1.9	0.1	3.2	0.1
2014	SO4	75th Percentile	0.6	0.1	0.5	0.1	3.4	27.1	0.7	0.1	4.9	0.1
2004-2013	SO4	Count	88	104	113	99	108	109	106	58	96	68
2014	SO4	Count	8	11	11	11	11	11	11	6	10	8
2004-2013	TDEPTH	Mean	0.19	0.34	0.64	0.35	0.53	0.69	0.55	0.14	0.25	0.16
2014	TDEPTH	Mean	0.22	0.31	0.61	0.41	0.61	0.77	0.47	0.14	0.28	0.17
2004-2013	TDEPTH	Variance	0.01	0.03	0.04	0.03	0.03	0.05	0.04	0.01	0.01	0.01
2014	TDEPTH	Variance	0.02	0.02	0.03	0.04	0.03	0.05	0.06	0.01	0.02	0.02
2004-2013	TDEPTH	25th Percentile	0.12	0.21	0.52	0.25	0.43	0.56	0.44	0.09	0.18	0.11
2014	TDEPTH	25th Percentile	0.09	0.20	0.48	0.33	0.51	0.74	0.28	0.06	0.21	0.10
2004-2013	TDEPTH	Median	0.18	0.32	0.65	0.35	0.54	0.70	0.56	0.13	0.24	0.17
2014	TDEPTH	Median	0.21	0.31	0.58	0.39	0.58	0.80	0.51	0.12	0.27	0.15
2004-2013	TDEPTH	75th Percentile	0.25	0.45	0.78	0.44	0.63	0.81	0.65	0.18	0.29	0.20
2014	TDEPTH	75th Percentile	0.30	0.36	0.70	0.50	0.73	0.89	0.64	0.18	0.40	0.19
2004-2013	TDEPTH	Count	72	76	79	73	76	79	76	61	70	61
2014	TDEPTH	Count	12	11	11	11	11	11	11	12	12	12
2004-2013	TDOC	Mean	40	12	43	16	43	83	42	13	80	8
2014	TDOC	Mean	31	13	32	16	48	56	30	14	72	9
2004-2013	TDOC	Variance	219	17	274	23	369	1346	472	74	890	4
2014	TDOC	Variance	13	4	81	11	1433	394	59	5	354	3
2004-2013	TDOC	25th Percentile	30	10	30	13	31	50	28	8	58	8
2014	TDOC	25th Percentile	29	12	28	14	28	40	27	13	63	9
2004-2013	TDOC	Median	35	12	40	15	39	80	36	10	73	8
2014	TDOC	Median	31	13	32	16	32	55	30	14	67	10
2004-2013	TDOC	75th Percentile	48	14	53	20	49	106	46	13	98	9
2014	TDOC	75th Percentile	32	14	36	16	57	72	33	14	78	10
2004-2013	TDOC	Count	40	77	102	76	96	97	93	14	58	19
2014	TDOC	Count	2	10	11	11	11	11	11	2	11	4

PERIOD	PARAMETER	STATISTIC	LOX10	LOX11	LOX12	LOX13	LOX14	LOX15	LOX16	LOX3	LOX4	LOX5
2004-2013	TDS	Mean	133	91	125	94	144	222	130	96	229	88
2014	TDS	Mean	74	88	111	78	159	260	110	125	283	65
2004-2013	TDS	Variance	3317	1344	2310	948	6406	11038	5165	696	6167	1082
2014	TDS	Variance	565	973	603	375	10106	6746	1024	65	4866	785
2004-2013	TDS	25th Percentile	87	65	86	78	92	134	84	80	166	67
2014	TDS	25th Percentile	62	81	100	74	79	201	86	120	230	49
2004-2013	TDS	Median	125	88	122	90	128	200	111	95	216	90
2014	TDS	Median	69	91	102	80	96	290	104	120	252	56
2004-2013	TDS	75th Percentile	176	109	159	111	157	298	156	118	280	106
2014	TDS	75th Percentile	88	106	122	85	234	319	125	127	346	76
2004-2013	TDS	Count	39	87	113	87	107	108	104	16	69	23
2014	TDS	Count	6	8	11	9	11	11	8	3	9	3
2004-2013	TOC	Mean	18	19	16	18	17	19	16	21	26	21
2014	TOC	Mean	14	16	16	14	15	20	14	30	24	20
2004-2013	TOC	Variance	8	19	12	17	15	15	11	12	43	20
2014	TOC	Variance	2	6	4	4	24	7	6	2	8	10
2004-2013	TOC	25th Percentile	16	16	14	15	14	16	14	18	22	17
2014	TOC	25th Percentile	13	15	15	12	11	18	12	30	23	20
2004-2013	TOC	Median	18	18	16	17	16	18	15	21	26	22
2014	TOC	Median	14	16	15	14	13	19	15	31	24	22
2004-2013	TOC	75th Percentile	18	21	18	20	19	21	18	24	29	25
2014	TOC	75th Percentile	15	18	17	16	19	21	16	31	25	22
2004-2013	TOC	Count	42	86	113	86	104	105	102	15	69	23
2014	TOC	Count	6	8	11	9	11	11	8	3	9	3
2004-2013	DO	Mean	4.4	4.2	4.7	4.6	4.3	4.6	2.9	4.5	4.0	4.7
2014	DO	Mean	4.5	4.6	5.3	5.0	5.1	4.6	3.8	6.5	3.2	5.5
2004-2013	DO	Variance	3.5	4.4	3.4	3.9	3.1	3.6	2.8	3.4	3.7	2.5
2014	DO	Variance	3.9	5.8	3.0	5.0	1.7	5.0	4.3	4.4	5.4	5.5
2004-2013	DO	25th Percentile	3.1	2.5	2.9	3.2	2.8	3.1	1.7	3.1	2.5	3.5
2014	DO	25th Percentile	3.1	2.1	4.5	3.3	4.3	2.7	2.4	5.3	1.4	3.9
2004-2013	DO	Median	4.0	3.9	4.6	4.3	4.3	4.7	2.7	3.8	3.6	4.6
2014	DO	Median	3.9	5.6	5.3	5.0	4.7	5.5	4.9	6.6	3.0	5.8
2004-2013	DO	75th Percentile	5.5	5.5	6.2	6.1	5.4	5.9	4.0	5.9	5.1	5.9
2014	DO	75th Percentile	5.3	6.2	6.3	6.6	6.0	6.3	5.4	7.2	3.6	7.0
2004-2013	DO	Count	83	104	109	98	106	107	105	59	90	65
2014	DO	Count	8	11	11	11	11	11	11	7	10	9

PERIOD	PARAMETER	STATISTIC	LOX10	LOX11	LOX12	LOX13	LOX14	LOX15	LOX16	LOX3	LOX4	LOX5
2004-2013	OPO4	Mean	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003
2014	OPO4	Mean	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002
2004-2013	OPO4	Variance	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
2014	OPO4	Variance										
2004-2013	OPO4	25th Percentile	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002
2014	OPO4	25th Percentile	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002
2004-2013	OPO4	Median	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002
2014	OPO4	Median	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002
2004-2013	OPO4	75th Percentile	0.004	0.004	0.004	0.004	0.004	0.004	0.004	0.002	0.004	0.004
2014	OPO4	75th Percentile	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002
2004-2013	OPO4	Count	42	86	111	86	106	107	103	17	70	22
2014	OPO4	Count	6	8	11	9	11	11	8	3	9	3
2004-2013	PH	Mean	6.6	6.4	6.9	6.4	6.7	7.0	6.5	6.4	6.7	6.3
2014	PH	Mean	6.3	6.3	7.1	6.5	6.7	7.0	6.7	6.5	6.9	6.2
2004-2013	PH	Variance	0.1	0.2	0.1	0.1	0.1	0.2	0.1	0.3	0.1	0.2
2014	PH	Variance	0.0	0.1	0.2	0.1	0.1	0.1	0.1	0.2	0.1	0.1
2004-2013	PH	25th Percentile	6.4	6.1	6.6	6.2	6.5	6.8	6.4	6.1	6.5	6.1
2014	PH	25th Percentile	6.2	6.1	6.8	6.3	6.6	6.9	6.5	6.2	6.7	6.0
2004-2013	PH	Median	6.6	6.3	6.8	6.4	6.7	7.1	6.5	6.3	6.7	6.2
2014	PH	Median	6.3	6.4	7.2	6.4	6.8	7.0	6.8	6.4	6.9	6.2
2004-2013	PH	75th Percentile	6.8	6.5	7.1	6.6	6.8	7.3	6.7	6.8	6.9	6.4
2014	PH	75th Percentile	6.4	6.5	7.4	6.8	6.9	7.2	6.9	6.7	7.0	6.2
2004-2013	PH	Count	88	104	111	97	107	108	106	63	95	68
2014	PH	Count	8	11	11	11	11	11	11	7	10	9
2004-2013	SPCOND	Mean	161	112	180	113	222	350	194	119	327	103
2014	SPCOND	Mean	107	118	175	109	249	430	157	131	425	127
2004-2013	SPCOND	Variance	5570	1342	4549	869	16420	28296	12358	1183	19229	609
2014	SPCOND	Variance	1279	1167	1176	589	28686	15677	2695	540	20722	965
2004-2013	SPCOND	25th Percentile	108	85	127	97	142	211	128	94	231	86
2014	SPCOND	25th Percentile	79	92	149	95	110	339	127	113	337	105
2004-2013	SPCOND	Median	134	104	165	109	182	325	160	115	287	105
2014	SPCOND	Median	93	119	174	111	165	470	163	127	376	126
2004-2013	SPCOND	75th Percentile	187	129	216	129	225	476	223	137	426	118
2014	SPCOND	75th Percentile	139	137	190	121	368	545	169	146	531	161
2004-2013	SPCOND	Count	85	95	105	90	101	105	102	63	91	67
2014	SPCOND	Count	8	11	11	11	11	11	11	7	10	9

PERIOD	PARAMETER	STATISTIC	LOX10	LOX11	LOX12	LOX13	LOX14	LOX15	LOX16	LOX3	LOX4	LOX5
2004-2013	TEMP	Mean	23	23	24	23	24	24	23	23	23	23
2014	TEMP	Mean	23	25	24	25	25	24	24	26	23	26
2004-2013	TEMP	Variance	26	21	21	21	20	20	19	29	25	29
2014	TEMP	Variance	21	16	14	17	15	15	13	12	20	14
2004-2013	TEMP	25th Percentile	19	20	21	20	20	21	20	21	19	20
2014	TEMP	25th Percentile	21	22	22	22	22	21	22	25	20	24
2004-2013	TEMP	Median	24	23	25	23	24	25	24	24	24	24
2014	TEMP	Median	23	25	24	25	24	24	23	25	22	25
2004-2013	TEMP	75th Percentile	27	27	28	27	28	28	27	28	28	28
2014	TEMP	75th Percentile	27	29	28	28	29	28	28	29	27	29
2004-2013	TEMP	Count	90	109	115	102	110	112	110	66	99	71
2014	TEMP	Count	8	11	11	11	11	11	11	7	10	9
2004-2013	TN	Mean	1.1	1.1	1.1	1.2	0.9	1.3	0.9	1.4	1.2	1.5
2014	TN	Mean	0.8	1.0	0.9	0.9	0.8	1.2	0.7	1.8	1.2	1.4
2004-2013	TN	Variance	0.0	0.1	0.2	0.1	0.1	0.0	0.0	0.0	0.1	0.1
2014	TN	Variance	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0
2004-2013	TN	25th Percentile	0.9	1.0	0.8	1.0	0.8	1.1	0.7	1.3	1.0	1.2
2014	TN	25th Percentile	0.7	0.9	0.8	0.8	0.6	1.1	0.6	1.8	1.1	1.4
2004-2013	TN	Median	1.1	1.1	1.0	1.1	0.9	1.2	0.8	1.5	1.2	1.4
2014	TN	Median	0.8	1.0	0.8	0.8	0.8	1.2	0.7	1.8	1.2	1.5
2004-2013	TN	75th Percentile	1.2	1.2	1.1	1.3	1.0	1.4	0.9	1.5	1.4	1.7
2014	TN	75th Percentile	0.9	1.1	1.0	1.0	1.0	1.2	0.8	1.8	1.2	1.5
2004-2013	TN	Count	41	87	113	86	106	106	104	15	70	23
2014	TN	Count	6	8	11	9	11	11	8	3	9	3

PERIOD	PARAMETER	STATISTIC	LOX10	LOX11	LOX12	LOX13	LOX14	LOX15	LOX16	LOX3	LOX4	LOX5
2004-2013	TP	Mean	0.008	0.007	0.008	0.007	0.007	0.007	0.008	0.009	0.011	0.008
2014	TP	Mean	0.006	0.006	0.007	0.007	0.006	0.006	0.007	0.007	0.009	0.007
2004-2013	TP	Variance	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
2014	TP	Variance	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
2004-2013	TP	25th Percentile	0.007	0.006	0.006	0.006	0.006	0.006	0.006	0.007	0.007	0.007
2014	TP	25th Percentile	0.006	0.006	0.005	0.006	0.006	0.005	0.006	0.006	0.007	0.006
2004-2013	TP	Median	0.008	0.007	0.007	0.007	0.007	0.007	0.007	0.008	0.009	0.008
2014	TP	Median	0.006	0.006	0.007	0.007	0.006	0.006	0.007	0.007	0.009	0.007
2004-2013	TP	75th Percentile	0.009	0.008	0.009	0.008	0.008	0.008	0.009	0.009	0.011	0.009
2014	TP	75th Percentile	0.006	0.007	0.008	0.007	0.006	0.006	0.008	0.008	0.012	0.008
2004-2013	TP	Count	88	108	113	100	109	110	108	64	95	70
2014	TP	Count	8	11	11	11	11	11	11	7	10	9
2004-2013	TSS	Mean	3.5	3.2	4.1	3.1	3.0	3.0	3.0	3.2	3.4	4.7
2014	TSS	Mean	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
2004-2013	TSS	Variance	8.9	1.0	72.2	0.7	0.1	0.0	0.0	0.6	4.2	28.3
2014	TSS	Variance	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2004-2013	TSS	25th Percentile	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
2014	TSS	25th Percentile	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
2004-2013	TSS	Median	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
2014	TSS	Median	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
2004-2013	TSS	75th Percentile	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
2014	TSS	75th Percentile	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
2004-2013	TSS	Count	42	87	113	87	107	108	104	16	70	23
2014	TSS	Count	6	8	11	9	11	11	8	3	9	3

PERIOD	PARAMETER	STATISTIC	LOX6	LOX7	LOX8	LOX9
2004-2013	ALK	Mean	53	14	11	15
2014	ALK	Mean	39	11	12	12
2004-2013	ALK	Variance	497	52	13	21
2014	ALK	Variance	191	5	10	5
2004-2013	ALK	25th Percentile	35	10	8	12
2014	ALK	25th Percentile	30	9	9	11
2004-2013	ALK	Median	48	12	10	14
2014	ALK	Median	34	12	12	13
2004-2013	ALK	75th Percentile	65	14	12	16
2014	ALK	75th Percentile	43	14	14	14
2004-2013	ALK	Count	88	94	100	49
2014	ALK	Count	10	10	10	6
2004-2013	CA	Mean	18	6	5	5
2014	CA	Mean	13	6	6	4
2004-2013	CA	Variance	64	3	2	2
2014	CA	Variance	24	1	1	1
2004-2013	CA	25th Percentile	12	5	4	5
2014	CA	25th Percentile	10	5	5	4
2004-2013	CA	Median	17	6	5	5
2014	CA	Median	13	6	6	4
2004-2013	CA	75th Percentile	22	8	6	6
2014	CA	75th Percentile	14	7	7	5
2004-2013	CA	Count	88	94	100	49
2014	CA	Count	10	10	10	6
2004-2013	CL	Mean	40	22	22	23
2014	CL	Mean	30	19	22	19
2004-2013	CL	Variance	506	65	72	53
2014	CL	Variance	233	55	72	66
2004-2013	CL	25th Percentile	22	16	16	17
2014	CL	25th Percentile	18	15	16	12
2004-2013	CL	Median	36	20	21	22
2014	CL	Median	23	19	22	21
2004-2013	CL	75th Percentile	54	27	27	28
2014	CL	75th Percentile	39	22	25	24
2004-2013	CL	Count	101	104	107	86
2014	CL	Count	10	11	11	9

PERIOD	PARAMETER	STATISTIC	LOX6	LOX7	LOX8	LOX9
2004-2013	DCS	Mean	0.47	0.43	0.44	0.32
2014	DCS	Mean	0.51	0.42	0.39	0.33
2004-2013	DCS	Variance	0.02	0.01	0.01	0.01
2014	DCS	Variance	0.03	0.02	0.01	0.02
2004-2013	DCS	25th Percentile	0.37	0.36	0.36	0.27
2014	DCS	25th Percentile	0.46	0.33	0.32	0.25
2004-2013	DCS	Median	0.48	0.43	0.44	0.31
2014	DCS	Median	0.50	0.39	0.39	0.33
2004-2013	DCS	75th Percentile	0.58	0.49	0.50	0.37
2014	DCS	75th Percentile	0.64	0.51	0.44	0.42
2004-2013	DCS	Count	74	80	80	69
2014	DCS	Count	11	12	12	12
2004-2013	SIO2	Mean	7	5	4	4
2014	SIO2	Mean	6	5	4	2
2004-2013	SIO2	Variance	31	5	3	3
2014	SIO2	Variance	3	1	2	1
2004-2013	SIO2	25th Percentile	2	4	3	2
2014	SIO2	25th Percentile	5	4	3	2
2004-2013	SIO2	Median	6	5	4	4
2014	SIO2	Median	6	5	4	2
2004-2013	SIO2	75th Percentile	12	6	5	5
2014	SIO2	75th Percentile	7	5	5	3
2004-2013	SIO2	Count	87	93	99	49
2014	SIO2	Count	10	10	10	6

PERIOD	PARAMETER	STATISTIC	LOX6	LOX7	LOX8	LOX9
2004-2013	SO4	Mean	3.9	0.2	0.1	0.1
2014	SO4	Mean	1.3	0.1	0.1	0.1
2004-2013	SO4	Variance	90.2	0.0	0.0	0.0
2014	SO4	Variance	1.8			
2004-2013	SO4	25th Percentile	0.5	0.1	0.1	0.1
2014	SO4	25th Percentile	0.6	0.1	0.1	0.1
2004-2013	SO4	Median	1.2	0.1	0.1	0.1
2014	SO4	Median	0.9	0.1	0.1	0.1
2004-2013	SO4	75th Percentile	3.2	0.2	0.1	0.1
2014	SO4	75th Percentile	1.4	0.1	0.1	0.1
2004-2013	SO4	Count	100	104	108	86
2014	SO4	Count	10	11	11	9
2004-2013	TDEPTH	Mean	0.35	0.31	0.32	0.20
2014	TDEPTH	Mean	0.33	0.31	0.28	0.22
2004-2013	TDEPTH	Variance	0.02	0.01	0.01	0.01
2014	TDEPTH	Variance	0.01	0.02	0.01	0.02
2004-2013	TDEPTH	25th Percentile	0.27	0.23	0.26	0.14
2014	TDEPTH	25th Percentile	0.26	0.24	0.24	0.16
2004-2013	TDEPTH	Median	0.34	0.32	0.33	0.19
2014	TDEPTH	Median	0.38	0.31	0.29	0.20
2004-2013	TDEPTH	75th Percentile	0.47	0.38	0.38	0.25
2014	TDEPTH	75th Percentile	0.40	0.36	0.33	0.29
2004-2013	TDEPTH	Count	75	75	76	67
2014	TDEPTH	Count	11	12	12	12
2004-2013	TDOC	Mean	55	14	11	16
2014	TDOC	Mean	40	11	11	13
2004-2013	TDOC	Variance	509	58	14	23
2014	TDOC	Variance	270	2	2	4
2004-2013	TDOC	25th Percentile	35	10	8	12
2014	TDOC	25th Percentile	31	11	10	12
2004-2013	TDOC	Median	51	12	10	15
2014	TDOC	Median	39	12	11	14
2004-2013	TDOC	75th Percentile	65	15	12	17
2014	TDOC	75th Percentile	42	12	12	15
2004-2013	TDOC	Count	77	82	88	42
2014	TDOC	Count	11	12	12	7

PERIOD	PARAMETER	STATISTIC	LOX6	LOX7	LOX8	LOX9
2004-2013	TDS	Mean	181	101	99	97
2014	TDS	Mean	129	95	81	66
2004-2013	TDS	Variance	6789	1514	1396	1191
2014	TDS	Variance	2540	333	748	968
2004-2013	TDS	25th Percentile	114	74	74	77
2014	TDS	25th Percentile	95	85	70	46
2004-2013	TDS	Median	170	98	98	96
2014	TDS	Median	114	95	81	76
2004-2013	TDS	75th Percentile	230	128	123	113
2014	TDS	75th Percentile	166	101	99	80
2004-2013	TDS	Count	88	92	98	47
2014	TDS	Count	10	10	10	6
2004-2013	TOC	Mean	19	22	22	18
2014	TOC	Mean	17	21	20	15
2004-2013	TOC	Variance	25	28	26	11
2014	TOC	Variance	5	5	9	4
2004-2013	TOC	25th Percentile	16	19	18	16
2014	TOC	25th Percentile	15	19	18	13
2004-2013	TOC	Median	18	22	21	18
2014	TOC	Median	17	21	20	15
2004-2013	TOC	75th Percentile	22	25	25	21
2014	TOC	75th Percentile	18	22	23	16
2004-2013	TOC	Count	86	94	100	49
2014	TOC	Count	10	10	10	6
2004-2013	DO	Mean	3.9	4.7	4.6	4.4
2014	DO	Mean	6.4	4.2	3.7	4.7
2004-2013	DO	Variance	3.2	4.4	4.2	3.2
2014	DO	Variance	5.2	7.9	6.3	6.1
2004-2013	DO	25th Percentile	2.4	3.1	3.0	3.2
2014	DO	25th Percentile	5.4	2.6	2.2	2.9
2004-2013	DO	Median	3.9	4.7	4.4	4.2
2014	DO	Median	6.6	3.7	3.0	3.7
2004-2013	DO	75th Percentile	5.0	6.0	6.0	5.5
2014	DO	75th Percentile	8.3	5.0	3.7	5.9
2004-2013	DO	Count	100	101	103	82
2014	DO	Count	10	11	11	10

PERIOD	PARAMETER	STATISTIC	LOX6	LOX7	LOX8	LOX9
2004-2013	OPO4	Mean	0.003	0.003	0.003	0.003
2014	OPO4	Mean	0.002	0.002	0.002	0.002
2004-2013	OPO4	Variance	0.000	0.000	0.000	0.000
2014	OPO4	Variance				
2004-2013	OPO4	25th Percentile	0.002	0.002	0.002	0.002
2014	OPO4	25th Percentile	0.002	0.002	0.002	0.002
2004-2013	OPO4	Median	0.002	0.002	0.002	0.002
2014	OPO4	Median	0.002	0.002	0.002	0.002
2004-2013	OPO4	75th Percentile	0.004	0.004	0.004	0.002
2014	OPO4	75th Percentile	0.002	0.002	0.002	0.002
2004-2013	OPO4	Count	86	93	99	47
2014	OPO4	Count	10	10	10	6
2004-2013	PH	Mean	6.9	6.3	6.2	6.4
2014	PH	Mean	6.7	6.3	6.1	6.2
2004-2013	PH	Variance	0.1	0.1	0.2	0.2
2014	PH	Variance	0.0	0.2	0.1	0.1
2004-2013	PH	25th Percentile	6.6	6.1	6.0	6.1
2014	PH	25th Percentile	6.6	6.1	6.0	6.1
2004-2013	PH	Median	6.9	6.3	6.2	6.3
2014	PH	Median	6.8	6.2	6.1	6.2
2004-2013	PH	75th Percentile	7.1	6.5	6.4	6.5
2014	PH	75th Percentile	6.8	6.5	6.2	6.2
2004-2013	PH	Count	101	105	107	86
2014	PH	Count	10	11	11	10
2004-2013	SPCOND	Mean	252	120	114	119
2014	SPCOND	Mean	182	110	117	105
2004-2013	SPCOND	Variance	13093	1467	1485	1018
2014	SPCOND	Variance	6482	1493	1528	1242
2004-2013	SPCOND	25th Percentile	158	94	89	100
2014	SPCOND	25th Percentile	131	84	87	78
2004-2013	SPCOND	Median	245	112	107	115
2014	SPCOND	Median	153	107	115	106
2004-2013	SPCOND	75th Percentile	317	139	135	137
2014	SPCOND	75th Percentile	198	125	132	128
2004-2013	SPCOND	Count	97	101	102	84
2014	SPCOND	Count	10	11	11	10

PERIOD	PARAMETER	STATISTIC	LOX6	LOX7	LOX8	LOX9
2004-2013	TEMP	Mean	23	24	24	24
2014	TEMP	Mean	25	24	24	24
2004-2013	TEMP	Variance	23	23	23	26
2014	TEMP	Variance	19	18	17	24
2004-2013	TEMP	25th Percentile	19	20	20	20
2014	TEMP	25th Percentile	22	22	22	21
2004-2013	TEMP	Median	23	24	24	24
2014	TEMP	Median	23	24	24	24
2004-2013	TEMP	75th Percentile	27	28	28	28
2014	TEMP	75th Percentile	29	27	27	28
2004-2013	TEMP	Count	105	110	112	90
2014	TEMP	Count	10	11	11	10
2004-2013	TN	Mean	1.3	1.3	1.4	1.3
2014	TN	Mean	1.1	1.1	1.3	1.2
2004-2013	TN	Variance	0.2	0.1	0.1	0.1
2014	TN	Variance	0.0	0.0	0.1	0.0
2004-2013	TN	25th Percentile	1.0	1.1	1.1	1.1
2014	TN	25th Percentile	0.9	1.0	1.1	1.0
2004-2013	TN	Median	1.2	1.2	1.3	1.3
2014	TN	Median	1.1	1.1	1.2	1.2
2004-2013	TN	75th Percentile	1.3	1.4	1.5	1.4
2014	TN	75th Percentile	1.2	1.2	1.4	1.3
2004-2013	TN	Count	88	94	100	49
2014	TN	Count	10	10	10	6

PERIOD	PARAMETER	STATISTIC	LOX6	LOX7	LOX8	LOX9
2004-2013	TP	Mean	0.007	0.008	0.010	0.007
2014	TP	Mean	0.005	0.007	0.009	0.007
2004-2013	TP	Variance	0.000	0.000	0.000	0.000
2014	TP	Variance	0.000	0.000	0.000	0.000
2004-2013	TP	25th Percentile	0.005	0.007	0.007	0.006
2014	TP	25th Percentile	0.004	0.006	0.008	0.007
2004-2013	TP	Median	0.006	0.008	0.009	0.007
2014	TP	Median	0.005	0.007	0.009	0.007
2004-2013	TP	75th Percentile	0.007	0.009	0.010	0.008
2014	TP	75th Percentile	0.006	0.008	0.010	0.008
2004-2013	TP	Count	102	107	109	88
2014	TP	Count	10	11	11	10
2004-2013	TSS	Mean	3.0	3.2	3.2	3.1
2014	TSS	Mean	3.0	3.0	3.0	3.0
2004-2013	TSS	Variance	0.1	4.3	2.7	0.7
2014	TSS	Variance	0.0	0.0	0.0	0.0
2004-2013	TSS	25th Percentile	3.0	3.0	3.0	3.0
2014	TSS	25th Percentile	3.0	3.0	3.0	3.0
2004-2013	TSS	Median	3.0	3.0	3.0	3.0
2014	TSS	Median	3.0	3.0	3.0	3.0
2004-2013	TSS	75th Percentile	3.0	3.0	3.0	3.0
2014	TSS	75th Percentile	3.0	3.0	3.0	3.0
2004-2013	TSS	Count	88	94	100	49
2014	TSS	Count	10	10	10	6

APPENDIX B

Table B-1. EVPA and LOXA stations classified into zones for analyses.

Canal	LOXA104, LOXA115, LOXA129, LOXA132, LOXA135
Perimeter (<2.5 km; <1.6 miles)	LOX4, LOX6, LOX10, LOX14, LOX15, LOX16, LOXA101, LOXA102, LOXA103, LOXA105, LOXA106, LOXA107, LOXA109, LOXA112, LOXA116, LOXA117, LOXA118, LOXA122, LOXA124, LOXA126, LOXA130, LOXA131, LOXA133, LOXA134, LOXA136, LOXA137, LOXA138, LOXA140
Transition (2.5 - 4.5 km; 1.6 - 2.8 miles)	LOX12, LOXA108, LOXA110, LOXA111, LOXA113, LOXA114, LOXA119, LOXA127, LOXA139
Interior(>4.5 km;> 2.8 miles)	LOX3, LOX5, LOX7, LOX8, LOX9, LOX11, LOX13, LOXA120, LOXA128